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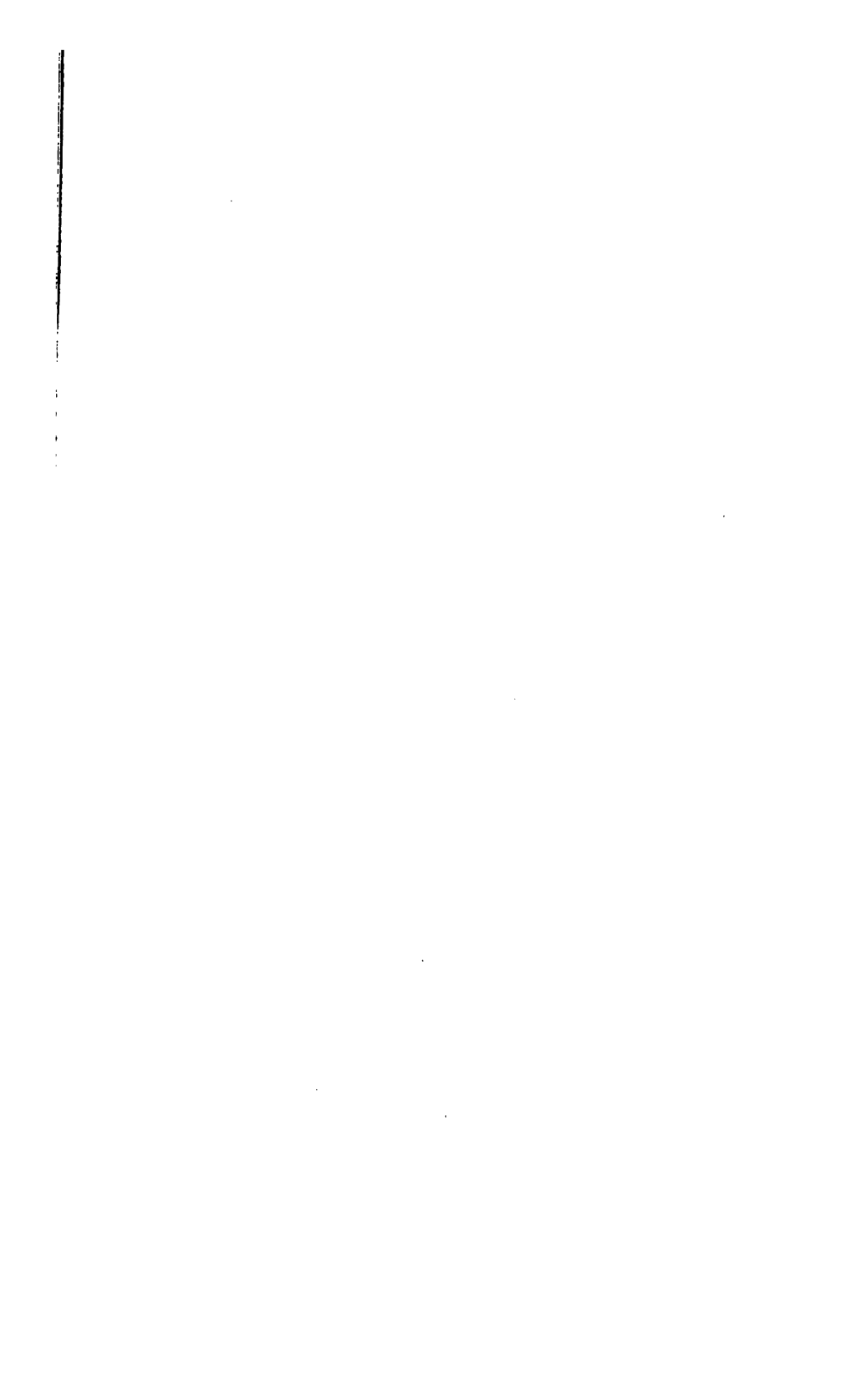
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“Facts, if carefully and honestly recorded, cannot but prove of real value, sooner or later, in the solution of some of the many intricate questions arising out of the diffusion of animals and plants.”—*Wollaston*.



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## EXPLANATION OF PLATES.

Portrait of Mr. Stainton, as frontispiece.

„ „ Prof. Westwood, to face page 50.

Plate i—see page 85.

„ ii— „ „ 155.

„ iii— „ „ 188.

## ERRATA.

Page 46, line 19 from bottom, for "hind-margin," read "dorsal margin."

„ 48, „ 8 „ „ „ "Wash-on-Dearne," read "Wath-on-Dearne."

„ 186, for "ASPIDIOTUS AFFINIS," read "A. DIFFINIS."

„ 188, „ "DIASPIS OPUNTIE," read "D. OPUNTICOLA."

„ 213, line 8 from bottom, for "22-7-71," read "28-7-71."

„ 243, „ 5 „ „ „ top, for "bask," read "base."

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[VOLUME XXIX].

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HENRY TIBBATS STANTON, F.R.S., &c.

*Henry Tibbats Stanton* died at his residence, Mountsfield, Lewisham, on December 2nd, 1892, in his 71st year (he having been born on August 13th, 1822), after a lingering illness of many months' duration, happily without pain, but attended with constantly increasing debility, and ending in utter prostration and collapse; yet he retained his mental faculties clear to the last. It is with the profoundest sorrow we announce this severance of a long friendship and association, in the one case enduring for 50, and in the other for 35, years: the more intimately he became known the more he was endeared by the sterling qualities of his character. Never of a robust constitution, he had on the whole fair health, although it was interrupted at times by temporary indisposition; his mental energy was great, he revelled in work, and was never more happy than when fully occupied. After being educated at home, and finally at King's College, he was engaged for some years in commercial occupations, and thus acquired and confirmed the habits of accuracy of observation, method and punctuality which characterized him throughout his life. He had a deep conviction of the value of time, and up to the beginning of his last illness he exemplified his advice to others and used to rise at 5 o'clock in the morning, and thus much of the best of his study and work was done before breakfast.

Naturally diffident and unobtrusive in society, he yet pursued the objects that interested him with ardour and perseverance, and his liberality in the cause of the advancement of entomological studies in Britain, which was always dear to him, and his unstinted aid in the identification of species, are too well known to require eulogy. From the first he restricted his researches to *Lepidoptera*, but he had sympathy with the students of all Orders of Insects, and of Natural History generally. Possessed of an ample fortune, he was conscious that "property has its duties as well as its rights," and he used his means freely to assist any cause or person that he deemed to be deserving. He was one of those men who "do good by stealth and blush to find it fame," but much of his kindness was known only to himself and the recipients.

He joined the Entomological Society of London in 1848, was one of the Secretaries in 1850—51, and President in 1881—82.

He became a Fellow of the Linnean Society in 1859, Secretary for a short time, and Vice-President in 1883—85.

He was elected a Fellow of the Royal Society in 1867, and was on the Council in 1880—82.

He was a Member of the Entomological Societies of France, Stettin and Italy, and Honorary Member of the Entomological Societies of Belgium and Switzerland. He was also a Member of some of the minor Societies; among them the West Kent Natural History and Microscopical Society, in which he took a keen interest; and on the Honorary List of the South London Entomological Society.

He was one of the Secretaries of Section D (Biology) of the British Association for the Advancement of Science in 1864 and from 1867 to 1872 inclusive.

In 1861 he became Secretary of the Ray Society at a critical period in its history, and by his business tact succeeded in rendering it flourishing; he held the post until 1872; and he edited the work on the Larvæ of British Butterflies and Moths by the late Mr. Buckler, now in course of publication by the Society.

In 1871 he was instrumental in founding the "Zoological Record Association," for the purpose of continuing the "Zoological Record," which had been relinquished by Mr. Van Voorst, and largely through his liberality this indispensable publication appeared regularly under the auspices of the Association until 1886, when it was taken over by the Zoological Society of London.

Articles and Notes from his pen abound in the various Natural History publications of his period, including amongst others :—

"The Zoologist," 1845—51, 1853—57.

"The Transactions of the Entomological Society of London," 1849, *et seq.*

"The Entomologist's Weekly Intelligencer," 10 volumes, 1856—61; originated and edited by him.

"The Entomologist's Annual," 20 volumes, 1855—74. Edited, and the articles on *Micro-Lepidoptera* written, by him. It is mainly a *resumé* of the additions made, during the respective years, to the Insect Fauna of Britain.

"The Entomologist's Monthly Magazine," of which he was one of the founders, and continuously one of the Editors. Each of the volumes, except the last, contains contributions by him, 28 volumes, 1864—92; and during the whole of this period he rarely missed taking part in the making-up of each No., either at his own house, or at that of one or other of his colleagues. Only a few days before his death he looked over the revise of the No. for December, 1892, and detected an error in time for correction.

His separate works are :—

"An Attempt at a Systematic Catalogue of the British Tineidæ and Pterophoridæ," 1 volume, 1849.

"A Supplementary Catalogue of the British Tineidæ and Pterophoridæ," 1 volume, 1851.

"The Entomologist's Companion," 1852 and 1854.

"Bibliotheca Stephensiana: A Catalogue of the Library of the late J. F. Stephens, Esq., F.L.S.," which was purchased by Mr. Stainton. 1 volume, 1853.

"Insecta Britannica: Lepidoptera-Tineina," 1 volume, 1854. The most strictly scientific of all his works.

"June: a Book for the Country in Summer Time," 1 volume, 1856.

"A Manual of British Butterflies and Moths," 2 volumes, 1857, 1859. This is the only work containing descriptions and localities of *all* the species, "interspersed with readable matter," and, from its concise and untechnical style, is the best book on the subject for beginners in collecting.

"The Natural History of the Tineina," 13 volumes, 1855—73. Illustrated by 8 coloured plates in each volume. He had the acknowledged assistance of Zeller, Douglas, and Frey, but the plan and elaboration of the work, which is printed in four languages (English, French, German, and Latin), were all his own.

"The Tineina of Syria and Asia Minor," 1 volume, 1864.

"British Butterflies and Moths," an elementary volume, with 15 coloured plates, 1867.

"The Tineina of Southern Europe," 1 volume, 1869.

"The Tineina of North America: by (the late) Dr. Brackenridge Clemens (being a collected edition of his writings on that group of Insects), with Notes by the Editor, H. T. Stainton," 1 volume, 1872.

He also compiled or edited two British Museum Catalogues, viz. :—"Catalogue

of British Micro-Lepidoptera," Sub-Div. *Tineina*. 1854: and "Catalogue of British Lepidoptera, by James Francis Stephens, F.L.S., second edition, edited by H. T. Stainton and Edwin Shepherd." 1856. This extended to the end of the *Pyralidæ*.

As his works show, Stainton's attention was, year by year, more and more devoted to the *Micro-Lepidoptera*, and his facile knowledge of the French, German and Italian languages enabled him to utilize the stores of information respecting them contained in the works of continental authors. He collected with great assiduity, both in Britain and abroad, especially in the South of France, to which he made several journeys, obtaining thus a great many species in various stages of existence. He also visited on several occasions some of the most eminent of continental entomologists, had large and continued correspondence with others, and eventually acquired a very extensive and valuable collection, which was available for the instruction of any one who desired to study it. The result of his researches was a complete revision of the genera and species found in Britain, previously in a chaotic state, and many new species were described by him.

Thus he made a revolution in the knowledge of our native *Micro-Lepidoptera*, and he did his work so well that, compared with what he accomplished, but little in his special line remains to be done. His experience and knowledge had made him a general referee in questions pertaining to his specialities. His more intimate friends suffer from a sense of void and remembrance of his geniality and striking individuality. Now he rests from his unselfish labours.

Though unconnected with his scientific career, and therefore not strictly within the scope of this memorial notice, it does not seem inappropriate to record the great interest he took in the educational and charitable institutions of the parish of Lewisham, and his large-hearted benevolence in connection therewith. In politics he was an energetic Liberal, but became a dissident on the division in the party.

In 1846 he married Isabel, the youngest daughter of Thomas Dunn, Esq., of Sheffield (who survives him), but had no family. She was his constant companion and help in all his undertakings, travels and excursions, and his devoted attendant during his long illness. He was buried in the family vault at Lewisham Old Church (St. Mary's) on December 7th.

J. W. DOUGLAS.

R. McLACHLAN.



A SYNOPSIS OF BRITISH *PSYCHODIDÆ*.

BY THE REV. A. E. EATON, M.A., F.E.S.

*Psychodidæ* are small *Diptera*, related to *Chironomidæ* and *Culicidæ*. They are mostly densely hairy, and in aspect similar to *Micro-Lepidoptera*; some of them, indeed, are clad with scales on parts of the wings, antennæ, palpi, and legs. The flies frequent situations suitable to the requirements of the larvæ, harbouring in herbage, on shrubs and trees, or on walls, and some of them are common on windows. Mud, damp sand, or moist sandy clay afford a *nidus* to many larvæ in wet or marshy situations; others reside in proximity to the sources of streamlets, or near water trickling through swamps and shady quagmires; others are partial to the banks of streams and watery ditches that are not stagnant, and to roadside spouts; a few are peculiar to bogs. Rotting leaves, rotten turnips and potatoes, and other decaying substances, such as dead snails and cattle droppings, supply subsistence to several species found in gardens and along hedges. A few enjoy sewage matters, and resort to scullery drain-traps and outdoor domestic offices of an old-fashioned rural type. *Phlebotomus*, a foreign genus, native of southern climates in Europe, is a tiresome blood-sucker.

The forty\* British species treated of in the present synopsis have been carefully studied during the last two years in the west of England, chiefly in the county of Somerset. Much has yet to be learned respecting their geographical distribution. The author is indebted for information under this head to the following entomologists, who entrusted him most kindly with their collections:—Mr. C. W. Dale, of Glanvilles Wootton, Dorset; Mr. G. H. Verrall, of Newmarket; and (for specimens collected in Scotland) Mr. J. J. F. X. King, of Glasgow. The *Psychodidæ* in the British Museum, named and arranged by the late Mr. F. Walker, and those in the Hope Museum, Oxford, in the absence of locality-records, are of little interest; and none of the collections examined (excepting, perhaps, Mr. Dale's) contained indisputable type-specimens of species described by English authors. Synonymy, therefore, has had to be derived from descriptive literature entirely, illustrated in some measure by the actual application of names in the collections examined.

The display of markings on the wings and legs of *Psychodidæ* largely depends upon the direction from which light falls upon them,

\* *Ulomyia*, 1; *Pericoma*, 51; *Psychoda*, 6; *Trichomyia*, 1; *Sycorax*, 1. Of these, the three single species of *Ulomyia*, *Trichomyia*, and *Sycorax*, five of *Psychoda*, and eight of *Pericoma* (total 58) have been previously described.

and on the nature of the background opposed to the specimen. This, in the first case, is because some of the wing-markings are due to bristling hair, brushed up as it were, on the nervures in particular regions, while others are produced by prostrate or appressed hairs. The bristling hair resembles that of *Hydroptilidæ*, a Family of the *Trichoptera*, excepting that the individual hairs in *Psychodidæ* appear to be smooth, and not serrulate or roughened microscopically like those hairs in that other Family. In another respect—scales on some of the wing nervures—the ♂ *Ulomyia*, and a few species of *Pericoma*, present analogy with certain representatives of the *Sericostomatidæ*, another Family of the *Trichoptera*.

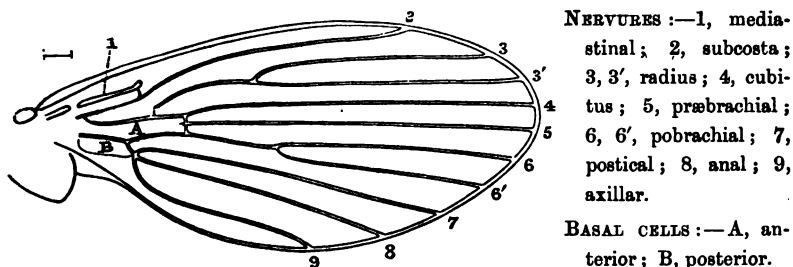
In preparing the Analytical Key to Groups, Genera, &c., and in the tabulation of species of Sections of Genera, characters apparently conducive to natural assemblage of species have been selected; but Group II had to be scheduled without reference to *Phlebotomus*, this genus being unrepresented in the collections to which access was obtained. In view of the author's intention of travelling abroad before the manuscript and figures could be completed, the distinctive points of many of the species have been described in the tabulations more in detail than might have been deemed desirable under other circumstances, with the object of securing, as far as possible, the main results of the investigation, in case anything might put a stop to the work. The supplementary matter is in an advanced stage of preparation. The tables have been revised and adjusted to the requirements of practical work up to the end of September, 1892. It is unfortunate that some of the leading clues are of a nature that demand the exercise of very close scrutiny on the part of the investigator; but tested repeatedly, they have hitherto always yielded accurate determinations of species—supplying a desideratum.

The most noteworthy points in wings are the inward destinations of the radial and postical nervures. Next in importance may be reckoned the position of the extremity of the wing, relative to the terminations of the cubital and præbrachial nervures, and the form of the wing's apex; and then may be ranked the positions of the points of bifurcation of the radial and pobrachial nervures in relation to the wing as a whole, or to the ends of certain of the other nervures, or to one another. In certain species it is hardly possible to ascertain exactly where the radial and postical nervures terminate towards the base of the wing, without removing the hair thereabouts, a line of hairs being liable to be mistaken for part of the radius, and making it appear to terminate in the subcosta, or else in the basal

cell, at a point farther in than its real ending. The inward terminations of the postical and axillar nervures are also often concealed through the density of the hair. When that is the case, worn specimens may supply a ready solution of perplexities, or it may suffice to denude the under-surface of the wing in that region, and shift the specimen about in different directions towards the light during its examination. Denudation of wings is easily effected under a lens, while the specimen is on the pin, with the aid of a very narrow strip of kid leather cut to an attenuated point, finishing touches being given afterwards when the wing is detached, and lying upon smooth paper. Fine hedgehog's bristles are useful at this stage. The wing can then be mounted between glass as an object for the microscope, and be placed in the cabinet for future reference. Wings of nearly all the species here described have been thus treated.

As a standard of reference, the wing of a common species of *Pericoma* has been selected.

#### WING OF PERICOMA NUBILA.



When more convenient, the 2nd, 3rd, and 4th nervures are designated by adjectives—subcostal, &c. The nervure connecting the end of the inner margin with the extreme wing-roots has no term applied to it; in *Sycorax* it is disconnected from the margin.

The homologies attributed to the nervures are open to discussion. Compared with the wing of *Ephemera* (cf. Trans. Linn. Soc. London, ser. 2, Zool., vol. iii, pl. viii, 12a), that of *Pericoma* appears to lack the sector (unless the branch of the radius 3' be reckoned a sector, as it might well be); and in place of two intercalaries between the anal and pabrachial nervures, *Pericoma* has a single nervure termed the postical. In the next place, on comparing the Analytical Key, given below, with Haliday's tabulation of the genera (Walk., Ins. Brit. Dipt., iii, 254, step a a), a difference is noticeable in the use of the term cubitus or cubital. Haliday himself is not uniform in his application of this term: in his description of *Psychoda* (op. cit., p. 255) it is applied to the posterior of the two nervures intervening between

the forked nervures; but in the analysis of *Pericoma* (*op. cit.*, p. 256, step *a*) it is employed to denote the anterior of the two simple nervures. The reason why, contrary to Haliday's view, the cubitus is in the present Synopsis described as absent in genera of Group I, is because the anterior of the two simple nervures is much weaker than the posterior in the wing of *Psychoda*, and this weakness is here regarded as evidence of its liability to be suppressed. Again, the nervure above referred to in the explanation of the woodcut as nameless, is by Schiner, in his analysis of the genera (Dipt. Austr., ii, p. xxxi, step 5, *Sycorax*), reckoned to be a rudimentary axillar nervure. This may be partly owing to the figures illustrating *Sycorax* in Walker's Ins. Brit. Dipt., iii, pls. xxvi, 5*a*, and xxx, 1, failing to show the nervure termed axillar in the present Synopsis. The artist, in fact, no doubt working at a disadvantage, failed to represent the nervures that meet the posterior basal cell, with his usual exactitude.

Little use is made of the term metatarsus.

Bibliography is curtailed. Only useful figures and descriptions are cited in full detail: where such are wanting, nothing more than authorship and date of publication is noted after the name of a species. Brevity is further attained, and much needless repetition avoided under the head of Groups, Genera, &c., in the general text, by the method here employed of quoting in reverse order the numbered steps that lead to them in the Analytical Key.

(*To be continued*).

## DRAGON-FLIES IN 1892.

BY C. A. BRIGGS, F.E.S.

A record of the species captured by my brother and myself during the past season will not, perhaps, be without interest, for either the year must have been an unusually good one, or the locality that we have chiefly worked must be a singularly prolific one.

The spot in question is the Hut Pond, near Wisley, Surrey, and is situate on the main Portsmouth Road, between Cobham and Ripley.

From round this pond we have, during the present year, taken eighteen species, and there are some three or four species more, which we might fairly hope to take in another season. As the whole number of the British *Odonata* (not counting *Sympetrum vulgatum*) is but 46, seven of which are either casual visitors or of doubtful authenticity, this seems to be a large number of species to occur at one pond.

We began (as recorded in Ent. Mo. Mag., new series, vol. iii, p. 199) by taking *Symp. Fonscolombii*, of which extremely rare species

we eventually got seventeen, all ♂s, not one ♀ being taken or seen. The first twelve ♂s were taken on June 8th, the last two on the 17th.

On the 10th, which, perhaps, was the hottest day of the whole year, we saw the ♂ fairly commonly, but only caught three, owing to a singular habit that we noticed on that day only, of settling on solitary rushes growing in the pond at some distance from the shore, and letting their wings droop. In this safe place they practically set us at defiance. I spent a long time wading after them, but even when an occasional cloud was passing, whenever I nearly got within striking distance, they flew away, only to settle again a few yards off, when the process was repeated and continued. On the other days their habits were similar to those of *S. striolatum*.

I presume that there can be no doubt that these *S. Fonscolombii* were part of an immigrant swarm, but there are two circumstances to which I should like to draw attention. First, the total absence of the ♀: no doubt, as a rule, in this genus the ♀ is either much rarer, or is of more retired habits than the ♂; but still, if the ♀ had been there, I think that one at least must have been seen, if not taken, for we were specially on the look out for them. The other point is, that the extremely early date would seem to show that they must have come from a much warmer climate, possibly North Africa.

Another good species taken was *Erythromma Nais*, of which, at the latter end of the month, we caught three, and lost three more.

A third local insect, so far as the South of England is concerned, was *Æschna juncea*, two ♂ and one ♀ of which we took on September 17th (Ent. Mo. Mag., new series, iii, p. 268).

The complete list of our captures at the Hut Pond is:—*Platetrum depressum*, common; *Libellula quadrimaculata*, common, var. *prænubila*, three specimens; *Orthetrum cancellatum*, fairly common; *Sympetrum Fonscolombii*, 17 ♂, *striolatum*, common, *scoticum*, common; *Anax formosus*, one taken, others seen; *Brachytron pratense*, 1 ♂, 1 ♀; *Æschna juncea*, 2 ♂, 1 ♀, *cyanea*, fairly common, *grandis*, fairly common; *Calopteryx splendens*, sparingly, evidently wanderers; *Lestes sponsa*, abundant; *Platycnemis pennipes*, sparingly; *Enallagma cyathigerum*, abundant; *Agrion puella*; *Ichnura elegans*, common; *Erythromma nais*, a few.

Five species, not including the sporadic *S. flaveolum*, might fairly be hoped for another season, viz., *Orthetrum cærulescens*, *Cordulia aenea*, *Calopteryx virgo*, *Pyrrosoma minium*, and *P. tenellum*. The last species, indeed, has been recorded from Weybridge, only some three miles off, by Mr. McLachlan.

On the banks of the Ouse, or "New Cut," near Ely, at a place where last year *Sympetrum sanguineum* was fairly common this year I only saw one, but *Agrion pulchellum* was in abundance.

At Bookham Common, Surrey, where last year *S. striolatum* and *S. scoticum* were common, and where I took one ♂? *vulgatum*, this year I only saw *scoticum* very sparingly. This is strange, as at the Hut Pond *scoticum* was common enough in all stages of maturity, including the var. *pallidistigma* of Stephens.

## ACULEATE HYMENOPTERA IN 1892.

BY THE REV. F. D. MORICE, M.A., F.E.S.

I have had opportunities this year of collecting Aculeate *Hymenoptera* in various parts of England. The season appears to have been a good one in most branches of entomology: I hardly think it has been so for my own favourites, the Aculeates. I have scarcely seen them anywhere in abundance, and several familiar kinds have not presented themselves at all; still, I have made some captures and observations, which may be worth putting on record.

*Passalacus monilicornis*.—This seems to be a rare and local species. For the last three years I have been taking it, sparingly, in Rugby. This year I obtained both sexes there in July; and in one case I caught the ♀ in the act of emerging from a hole under the bark of a live apple tree in a nursery garden. In the same garden, about the end of July, I was lucky enough to capture the rare *Nysson trimaculatus*, and I was also glad to meet with *Hoplissus quadrifasciatus*, both sexes, but especially the females, in considerable numbers, flying and running over a large strawberry bed; they seemed to be preying on the "cuckoo-spit," or some insect of that kind. I have seen the males at Rugby in previous years running over masses of gout weed (*Egopodium podagraria*) in ditches, but had never been able to find their females.

*Crabro capitatus* occurs now and then at Rugby, and I have taken some specimens this year. It is a rare species, a good deal like a small *leucostomus*. I find it about the end of June in gate posts and palings.

*Spilomena troglodytes* has occurred this year at Rugby, also burrowing in posts. So, too, in much greater numbers has *Stigmus pendulus*. I have found females of this species strangely infested with *Acari*. In one case the abdomen was entirely covered with these parasites, so that, to the naked eye, it appeared to be not black but testaceous all over; in another specimen *Acari* were hanging to the antennæ, and remained there after the insect had passed through the cyanide bottle.

*Psen pallipes* is common in most places, and this year, for the first time, I have found it common at Rugby. It has also, this year, had a very long season at Rugby, unless it is double brooded, for I found it there as early as May and as late as the 26th of September.

Both this year and last I have seen at Rugby *Prosopis communis* issuing from holes in wooden palings. This, I believe, is a somewhat unusual observation, so it may be worth recording. I have also seen a number of workers of *Bombus muscorum* going into and out of an apparently deep hole in the earth at the side of a large ditch. Unfortunately it did not occur to me to verify the observation by digging, but I feel sure that in this case the species had deviated from its usual habit of surface building. Similar observations have occasionally been made about other species, but I know of none such in the case of *muscorum*, which has always been considered a most regular surface builder.

I spent the first fortnight or so of April at Hastings. *Nomada borealis* ♀ was fairly common in its usual haunts there; the males were all but over, even then.

*Andrena fasciata*, *Trimmerana* (var. *spinigera*), *lapponica*, &c., occurred, but in no great abundance. At Guestling I took what I fondly hoped was a ♀ of *Osmia xanthomelana*, but it proved to be only a *pilicornis*. After two or three days of splendid sunshine, which raised my hopes of splendid captures to an extravagant pitch, the weather broke up completely, and put an end to collecting for the remainder of my visit.

On August 1st I found myself at Deal, and throughout that month, as far as the weather would permit, I collected vigorously in that famous district. *Andrena Hattorfiana* (♂ and ♀) abounded in the direction of Kingsdown, but all the specimens taken were quite black. *Nomada armata* was not to be found, in spite of prolonged and careful search; the only species of that genus that appeared was *jacobææ*. Nor could I come across *Andrena cetii*, though I obtained that species in the following month on Scabious near Chobham. I got a few females of *Andrena simillima* at Kingsdown; but, except *Hattorfiana*, no *Andrena* occurred in any quantity, and even of so common a kind as *fuleivens* I saw only a solitary male.

By far the most abundant bee that I found at Deal was *Prosopis dilatata*, a creature I have never met elsewhere. The males seemed nearly over, but I may safely say that I could have taken the females by hundreds, and they seemed to visit all kinds of flowers indiscriminately. Other bees which I was glad to meet with in the same neighbourhood were *Colletes picistigma* (several males and one female), *Osmia leucomelana* (1 ♀), *Megachile lignisea* (several fine specimens of both sexes, distinctly larger than *maritima*), and *Megachile argentata* (females only). Few *Halicti* appeared, and hardly any *Sphacodes*. Wasps were not abundant, but *Odynerus trimarginatus* turned up occasionally. Of the *Fossores* the best kind that occurred was *Miscophus maritimus*; I took one male and three females on the sandhills, and I believe they were not uncommon there, but they are most troublesome to capture, and so restless, that they are out of sight almost before they are in it. I kept an anxious look out for *Tachyles lativalvis*, but only the common species occurred. Amongst my other Deal captures were *Priocnemis obtusiventris* and *pusillus*, *Pompilus pectinipes* (♂ and ♀, the prothorax with rounded emargination in both), *Ammophila lutaria*, *Mutilla rufipes*, and *Hedychrum ardens*. From Deal I went over for a day to Folkestone, and there found, what I had not found at Deal, *Tiphia femorata*, ♀, pretty common on the wild carrot.

Just as the season was closing I paid my first visit to another district, of which I hope to see more in another season; this was Cannock Chase, a beautiful series of heathy downs close to Stafford. I had only one day there, and wind and rain interfered much with the expedition. However, I secured a worker of *Bombus lapponicus*, and some specimens of *Colletes succincta* and *Andrena fuscipes*, species which seem always to occur where heather abounds, and, so far as I have seen, there only. Generally in *fuscipes* the pubescence at the apex of the abdomen is very decumbent, but in these specimens it was so erect that I took them for *simillima*. Mr. Saunders, however, pronounces them to be *fuscipes*, and no doubt they are so. All that is known of the habits of the two species makes it unlikely that *simillima* should be found visiting heather, while no bee is more devoted to that plant everywhere than *fuscipes*.

In conclusion, I may mention that I have taken two very curious colour-varieties of *Bombus* this year. One, in the spring, at Rugby—a *terrestris*, ♀ (var. *virginialis*),

so extraordinarily dark, that at first sight its species is hardly recognisable; the normal orange bands on the thorax and abdomen are reduced to a slender thread only just visible under a strong lens. My other curiosity is a *lapidarius*, ♀, from Hastings, with a distinct, and even conspicuous, brownish margin to the pubescence of the thorax in front and behind, and with the black of the abdomen also shading off into a similar brownish colour, which, in its turn, shades off into the red on the apical segments. So little variation has hitherto been recorded in the females of *lapidarius* that it requires some faith to accept this as one; but all its *structural* characters seem to indicate that species, and to separate it from any other which its colouring might suggest.

Rugby: October, 1892.

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#### NOTES ON THE EARLY STAGES OF *COLIAS HYALE*, L.

BY F. W. HAWES.

For the material enabling me to make the following descriptions, I am largely indebted to my friend Mr. H. Williams, who, as will be recorded in the "Entomologist" of January, 1893, succeeded in bringing through two specimens of the imago out of a number of larvæ from ova laid in September by the captured female.

The egg of *C. Hyale*, which is very similar to that of *C. Edusa*, being perhaps a little fuller at the middle, is laid on various species of *Trifolium* and *Medicago*, doubtless singly in a natural state, although in clusters in confinement, and, by preference, on *Medicago lupulina*. It is worthy of notice that the egg of *Hyale* bears a curious likeness to the early forming flowers of this common plant, so that it is difficult to distinguish any ova which may be laid on or near the flower head. The parent female of both *Edusa* and *Hyale* appears to take full advantage of this likeness to lay clusters of eggs either on or very near to the yellow balls of blossom; in one case (of *Hyale*) as many as sixty-five ova being crowded on to the leaflets immediately surrounding one blossom.

The egg hatches in about eight days, and the newly-emerged larva appears of a unicolorous leaden hue, in reality, deep dull green. By an undeviating instinct, it finds out the centre of the leaf, and takes up a position exactly along the midrib, and so positive is this habit, that it was no uncommon thing to find from four to six of these little larvæ stretched out head to tail along the middle of one small clover leaf. At this early period, without moving their hind claspers, they merely scoop out small portions of the leaf (always on the upper-side), and as the larvæ grow these attacks on the cuticle are extended until small holes appear through the leaf.

After the first moult, the head assumes a paler tint, and one



characteristic feature of the full-grown larva is foreshadowed in the dense covering of downy hair, each hair springing from a wart or raised spot beneath the skin. The body gradually loses its dark look, and by the second moult the general colour corresponds very nearly with the food-plant, *i. e.*, a clover leaf. When examined under a microscope, the larva of *Hyale* reminds one in some respects of the larva of *Anthocharis cardamines*—the body green, shading off to a white side stripe, and covered very thickly with warts, each of which produces a single hair. There is, however, no clear design in the position of these warts, and they appear to vary in size and prominence; the white line, moreover, is narrow when compared with the side stripe of *cardamines* larvæ, to the naked eye, however, these likenesses are not at all striking. The yellow spots below the white stripe are only faintly visible in this stage.

After the next moult, *i. e.*, the fourth and last skin, the larva attains to a length of rather more than one inch, and by those who have seen full grown larvæ of *C. Edusa* would readily be mistaken for that of this species, were it not that the dense covering of short hair, and the extension of the orange spots adjoining the spiracles indicate a reliable distinction. Speaking concisely, the full-grown larva of *C. Hyale* is of a deep green, thickly covered with short hair, and having a white stripe running the length of the body above the spiracles. Adjacent to each of the spiracles, and prolonged so as to give the appearance of a blotch, is an orange-yellow spot, and in some specimens these spots would seem to compose a broken line, hence probably the error frequently made in describing this larva as being "green, with four yellow stripes."

When full-fed, the larva spins a few leaves loosely in the form of a tent or temporary covering, and fastening itself at the anal extremity to a convenient object, passes a silken cord over the back and changes in an upright position to a pupa after the manner of the larva of *Gonepteryx rhamni*. The pupa is almost identical in shape with that of *Edusa*, being perhaps a little less rounded, and not so bulging at the centre; green, whitish at the back, the wing-cases with several (generally six) dark spots at the hind-margin of the fore-wings; there is also a dull brown mark on each side of the body below the wing-cases. In each of the two cases in which pupæ were obtained the imago emerged in twelve days, on 22nd and 25th November.

It may be well to note, by way of conclusion, that at the present time, December 20th, three of the surviving larvæ are attempting hibernation in that state.

Grasmere, North Finchley, N. :  
December 20th, 1892.

*BLABOPHANES HERINGI* AT PORTLAND: DISTINCT FROM  
*B. FERRUGINELLA*?

BY N. M. RICHARDSON, B.A., F.E.S.

When looking through the cabinet of my late lamented friend, Mr. Stainton, a year or two ago, I saw a short series (I think four specimens) of a *Blabophanes*, placed next to *B. ferruginella*, Hb., and labelled *Heringi*, with a query as to their being a distinct species, and on asking him about them, he professed himself unable to give a decided opinion as to whether they were so or not.

The form of *ferruginella* that we take at Portland is very close to these specimens, and differs somewhat from the *ferruginella* which occurs about London and elsewhere, so far as I have seen it, so that if *Heringi* is entitled to specific rank, our Portland form should share the distinction. It has the fore-wing apparently broader towards the apex, but this arises from the fact that in the Portland specimens the anal angle of the fringe is pale ochreous, whereas in the *ferruginella* I have it is dark, which makes this part more striking to the eye when the moth is in a cabinet drawer, but if both forms are held up to the light, the difference in this respect is not so conspicuous, and as regards the wing itself, leaving out the fringes, I think that *ferruginella* is, if anything, narrower than the other. In this I am confirmed by Mr. Stainton, who, in a letter to me of December 19th, 1891, says, as follows:—"Your Portland *ferruginella* do, indeed, seem to approximate to *Heringi*, in having broader anterior wings, and in well-marked specimens a subapical dark spot on the costa, of which, in ordinary *ferruginella*, I see no trace. Whether *Heringi* is really a good species is a point on which I am still rather doubtful."

In the *ferruginella* which I have, I do not, as Mr. Stainton says, trace any dark subapical spot, but they are so dark altogether, that it appears to me that it might be merged in the general colour of the wing. Portland specimens are not nearly so handsome as *ferruginella*, and have by the side of them a somewhat washy appearance, looking rather as if they might be bad specimens of the latter species which had migrated there in a body for their health, but, under a magnifying power sufficient to show the separate scales distinctly, this appearance is seen to be due to the sprinkling over the face of the wing of a number of pale ochreous scales, the dark scales being also rather lighter than those of *ferruginella*. The inner marginal area is rather paler than in *ferruginella*, and as has been above mentioned, the fringes are pale ochreous, with a few dark scales at the apex, and a few here and there extending only as far as the middle of the fringe, which

give an appearance of a dark line running through it parallel to the hind margin. The hind-wings are paler, and their fringes much paler, than those of my *ferruginella*. The body and legs are also paler, and the diaphanous spot has a tendency to be larger than in *ferruginella*.

Without fuller information, it is difficult to pronounce this Portland form, which we may call *Heringi*, a good species, though considering the constancy of the characters above indicated (for I have never taken a dark *ferruginella* there, though *Heringi* is sometimes very common), we may certainly look upon it as constituting at least a well-marked local variety. This is what I should have been inclined to consider it, were it not for the fact that a very similar variety has been taken on the continent, and there considered worthy of elevation to the rank of a doubtful species, which leads me to question whether the Portland and German forms may not be derived from a common ancestor, independently of *ferruginella*, and not directly from the latter species, in which case it could not be looked upon as merely a constant local variety.

I have in my series of *ferruginella* two specimens taken by Mr. Atmore in Norfolk, which also correspond with *Heringi*, but I have no further particulars of its occurrence in that neighbourhood.

I should be glad of any information about these and other British *Heringi* or *ferruginella*, or about the German *Heringi*, which would be likely to throw any further light upon the subject, and I should be especially obliged to any one who would be kind enough to lend me any light forms of *ferruginella*, if such occur, either in conjunction with the dark form or not, for comparison with the Portland ones.

This moth occurs at Portland at the end of June and through July and part of August. I have one specimen, taken on October 7th, 1887, but this is my only autumn capture.

Monte Video, near Weymouth :

December 17th, 1892.

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*On the pith for mounting minute insects.*—At the last Meeting of the Entomol. Soc. Lond., Mr. Farren exhibited *Nepticula* mounted on pith, a practice universally in vogue on the continent for minute winged insects. From the appearance of the pith, I gathered it was that of elder, and was informed it was so. This pith is decidedly objectionable, as it invariably turns yellow in a short time. The best for the purpose is that of "Jerusalem Artichoke" (*Helianthus tuberosus*). The stems of this plant are annual, and only the large, fully matured ones should be selected,

and then only those that have been allowed to remain uncut sometime after they are dead. The thick portions of these stems may then be dried by placing them, say on the top of a book-case in a room where the gas is in frequent use, and, if the outer woody portion is not attacked by beetles, they will last for years. The pith is beautifully white and firm, with an almost crystalline lustre, and very fine "grain;" it does not change colour by age, and holds the pins admirably. Mr. Stainton constantly used this pith, and certainly more than once advocated its merits in print. *Agave* pith, from which the Indian helmets are made, and with which boxes of foreign insects are often lined, might answer, but is certainly in no way to be compared with that of the Artichoke. Prepared sheets of it for study work, for placing insects on for examination, are admirable. It has been accused of corroding the points of the pins, and from this cause should be regarded with suspicion. Most certainly, boxes of Indian insects received by me, lined with this substance, have had the pins so corroded. But whether this was due to direct action of the pith itself, or to the moisture, inevitable in a tropical climate, absorbed by it, I cannot say. I say emphatically:—Use Artichoke Pith!—R. McLACHLAN, Lewisham: December 17th, 1892.

*A proposed revised List of Irish Lepidoptera.*—As I propose at an early date publishing a revised list of Irish *Lepidoptera*, based on that published in the year 1868 by the late Edwin Birchall, Mr. Barrett having kindly promised to take charge of the section of the *Micro-Lepidoptera* as before, I write to say that if any gentlemen can supplement my information as to Irish localities for any of the following species I should be much indebted. I should ask localities to be particularized as nearly as may be, and to secure accuracy as much as possible, I only ask for records of personal captures:—

*Melitæa Athalia*, Esp., *Lycæna Ægon*, Bork., *Hesperia sylvanus*, Fab., *H. lineæ*, Fab., *Sphinx ligustri*, L., *Sesia apiformis*, L., *S. myopæiformis*, Bork., *S. tipuliformis*, L., *S. culiciformis*, L., *S. scoliformis*, Hübn., *Hepialus sylvinus*, L., *Nola cucullatella*, L., *N. strigula*, W.V., *Setina irrorella*, L., *Calligenia miniata*, Forst., *Lithosia aureola*, Hübn., *Liparis chrysorrhæa*, L., *L. auriflua*, Fab., *L. salicis*, L., *L. monacha*, L., *Trichiura cratægi*, L., *Angerona prunaria*, L., *Ennomos erosaria*, W.V., *Amphydasis prodromaria*, W.V., *Hemerophila abruptaria*, Thun., *Ephyra punctaria*, L., *Hyria auroraria*, Gn., *Asthena candidata*, W.V., *Acidalia rusticata*, W.V., *A. incanaria*, Hübn., *A. fumata*, Steph., *Corycia temerata*, W.V., *Macaria notata*, L., *Halia wavaria*, L., *Aspilates citraria*, Hübn., *Abrazas ulmata*, Fab., *Hybernia rupicapra*, W.V., *H. leucophaæria*, W.V., *Larentia olivata*, W.V., *Emmelesia ericetata*, Curt., *Eupithecia succenturiata*, L., *E. subfulvata*, Haw., *Cerura bifida*, Hübn., *C. furcula*, L., *Notodonta trepida*, Fab., *N. dodonea*, W.V., *Cymatophora flavicornis*, L., *Acronycta tridens*, W.V., *A. aceris*, L., *Leucania pudorina*, W.V., *Nonagria despecta*, Tr., *Mamestra anceps*, Hübn., *M. albicolon*, Hübn., *Agrotis corticea*, W.V., *A. ripæ*, Hübn., *Taniocampa populeti*, Fab., *T. cruda*, W.V., *Orthosia ypsilon*, W.V., *Anchocelis litura*, L., *Hopiorina croceago*, W.V., *Xanthia citrigo*, L., *Cosmia affinis*, L., *Polia flavocincta*, L., *Hadena protea*, W.V., *H. chenopodii*, W.V., *Cucullia verbasci*, L., *Brephos parthenias*, L., *Amphipyra pyramidea*, L., *Euclidia glyphicea*, L.—W. F. DE V. KANE, Sloperton Lodge, Kingstown, Ireland: December, 1892.

*Colias Edusa* in December in the South of France.—It may perhaps be of interest to record that I observed a single example of *C. Edusa*, flying on the Promenade des Anglais, on December 1st. The morning was bright and warm for the time of the year. *Vanessa Atalanta*, of course, still disports itself in the sun. It occurs all the year round in fine weather.—FRANK BROMILOW, Nice, S. France : December 5th, 1892.

*Homoptera at Woking and Chobham*.—In my list of rarer species observed in the above district (Ent. Mo. Mag., xxviii, p. 218), I recorded the occurrence of *Pediopsis nassatus*, Germ., and *Deltocephalus oculus*, Sahlb. Mr. J. Edwards has been good enough to examine the specimens which I captured, and tells me that he does not think either of them is correctly named. The *Pediopsis*, although unknown to him, he says is certainly not *nassatus*, and as he has been so kind as to send me continental examples of that species to examine, I can quite endorse his opinion.

The *Deltocephalus* belongs to a very difficult group of that difficult genus whose species are ill-defined at the best, but at any rate, I think I had better for the present withdraw *D. oculus* from the list of species inhabiting our Woking district.—EDWARD SAUNDERS, St. Ann's, Woking : December 14th, 1892.

*Coccidæ in the Lesser Antilles*.—The scale-insects of the Lesser Antilles seem to be almost entirely unknown, except from a very few recent records. Mr. C. A. Barber has lately sent me many interesting species from several of the islands, including several apparently new to science. Of the previously described species, the following may be put on record :—

- (1.) Antigua.—*Lecanium hemisphericum*, Targ. (on *Eranthemum*); *Chionaspis minor*, Mask. (on *Capsicum*); *Mytilaspis citricola*, Pack. (on Tangerine orange); *Lecanium longulum*, Dougl. (on pigeon peas); *Lecanium oleæ*, Bern. (on *Terminalia*, with a n. sp. of *Lecanium*); *Ischnaspis filiformis*, Dougl. (on *Sabal*).
- (2.) Montserrat.—*Asterodiaspis pustulans*, Ckll., In. Inst. Jamaic., 1892, p. 143 (on pigeon peas and white oleander).
- (3.) St. Kitts.—*Vinsonia stellifera*, Westw. (on *Ardisia polycephala*).

—T. D. A. COCKERELL, Institute of Jamaica, Kingston, Jamaica : Nov. 29th, 1892.

*Coccids in Ants' nests*.—In connection with the article on this subject, on p. 307 of the last volume of this Magazine, I may mention that a Lincoln head-gardener has informed me that he has observed a species of ant (presumably exotic) in his hothouses carrying *Coccids* from place to place, and establishing colonies, just as certain species of ant do with certain *Aphides*. As the owner of the garden has since died, I am afraid that it will be impossible now to identify the species; the same gardener (Mr. Wipf, now of Hartsholme Hall, near Lincoln) tells me that he was on one occasion considerably troubled with *Coccids*, and, noticing a large number of wasps about, he thought they were attacking the grapes; he found, however, that they were devouring the *Coccids*, and that they did not attack the grapes before they had cleared them.—W. W. FOWLER, Lincoln : December 15th, 1892.

*Otiorrhynchus sulcatus*, F.—This beetle has long been known as injurious to vines, strawberries, and sometimes to raspberries, and I have recorded the larvæ as having damaged maidenhair ferns by attacking the roots; this latter fact has lately been confirmed by gardeners in Lincoln, and they have also found injury done to the roots of *Cyclamens* by the larvæ, as well as to the leaves of *Dracæna*, and to the leaves of peach trees in orchard houses by the perfect insects; in case of attack of larvæ the best remedy is to remove the surface soil, or, in the case of pot-plants, to re-pot, after carefully cleansing the roots; the perfect insects feed by night, and may then be captured in numbers by placing sheets under the vines, &c., and beating the branches.—ID.

*Note on Homalopia ruficollis*, Fabr.—The black variety of this species is supposed to be much rarer than the ordinary form in Britain, but I doubt if this is really the case. I have not, however, had the good fortune to meet with the species here, but noticing it in the greatest profusion last year at Vernet, I bottled a large number of specimens, of which more than half were of the dark variety. At Vernet the insect frequented the *Cistus* flowers in the hottest sunshine, and appeared to be soon over. It is probable that it only lasts a short time here.—G. C. CHAMPION, Horsell, Woking: December 12th, 1892.

*Note on Throscus carinifrons*, de Bonv., and some other species of the genus.—*Throscus carinifrons* occurred in plenty to Mr. Saunders and myself by evening sweeping in this neighbourhood on June 27th last, and on mounting some of the specimens I noticed a character in the form of the prosternum by which the species differs considerably from the commoner *T. dermestoides*, Linn. The prosternum in *T. dermestoides* is almost flat, with the marginal carina faint and obliterated anteriorly; in *T. carinifrons* (as in *T. obtusus*), it is rather convex, with the marginal carina entire, and much more sharply defined. In *T. carinifrons* it bears some scattered, fine, deep punctures on the anterior part, of which there is no trace in *T. dermestoides*. The form of the prosternum is not noticed by de Bonvouloir. The genus *Aulonothroscus*, Horn, only differs from *Throscus* in having a "deep, sharply defined groove in the metasternum, beginning at the middle coxæ, and slightly curving outwardly, terminating at the posterior angle of the metasternum;" this groove being shallow and not sharply defined in *Throscus*. This character also was overlooked by de Bonvouloir, at least three of his species—the North-American *T. punctatus* and *T. constrictor*, and the Australian *T. elongatus*—belonging to *Aulonothroscus*. The European species known to me all belong to *Throscus*. The genus *Aulonothroscus* is widely distributed in the New World, ranging from the United States to Brazil, and numerous species have already been referred to it by Dr. Horn.—ID.

*Note on Dyschirius obscurus*, Gyll.—Mr. F. Bates has recently submitted to me several examples of this doubtful British species for verification. They were found mixed with other *Dyschirii* in the late Dr. Boswell Syme's collection, a portion of which has been acquired by Mr. Bates, and there can be little, if any, doubt of their British origin. Dr. Syme, as is well known, collected chiefly in Scotland. Unfortunately, none of the insects in his collection bear locality labels.—ID.

*Coleoptera at Fairlight during 1892.*—I have devoted a good deal of my time this season to working the Fairlight portion of the Hastings district, and have met with a few very good species. *Lixus algirus* occurred to me this year for the first time at the same place where it was taken by Mr. S. Stevens in 1848, and in numbers by Dr. Power in 1867. It was not at all common, but by continuous searching I managed to get a fair number of specimens. The time of appearance must be very variable, as I took larvæ, pupæ, and imago at the same time, late in September. I was not able to rear any of the larvæ, but the pupæ hatched out all right. These pupæ were extremely active, moving up and down the interior of the thistle-stem quite rapidly. Each segment of the abdomen is furnished with a series of little hooks, and when the pupæ are alarmed the apex of the abdomen is pressed against the sides of the stem, and by a series of jerks, they work their way either up or down with great ease. I notice Canon Fowler, in his "Hand-book," says that the larger species of *Lixus* occur only singly in the stem; this is certainly not always the case with *L. algirus*, as on one occasion I found three pupæ in a single stem, and several stems with two perfect insects. The species seems extremely liable to attacks from earwigs. I found a number of immature specimens partially eaten by them, where the thistle-stem happened to be broken, so that they could enter freely.

By beating dead wood, I secured a very nice series of *Acalles roboris* and *A. turbatus*; a few specimens of *Orchesia minor*, *Cis alni* (1), *Endomychus coccineus* (1), and plenty of *Lathridius angusticollis*.

On July 11th, I beat three specimens of *Cissophagus hederæ* out of old ivy, but although I tried very hard for more, I only succeeded in getting one more specimen on August 7th.

Evening sweeping produced only *Colon brunneum*, *Anisotoma calcarata*, and *A. badia*, *Platytarsus echinatus*, *Liosomus oblongulus* (1), and *Phytobius 4-tuberculatus*.

In old refuse I found two specimens of *Pseudopsis sulcata*, one of which, unfortunately, got destroyed on the cork of the collecting bottle. *Agathidium rotundatum* (3) occurred in powdery fungi on a dead tree; *Apion subulatum* was not rare, on *Lathyrus pratensis*; and *Sitones Waterhousei* somewhat common under *Lotus corniculatus*.—W. H. BENNETT, 11, George Street, Hastings: November, 1892.

*Apionida, &c., at Llantrissant, S. Wales, September, 1891.*—Sweeping in a couple of fields near the G. W. Railway, about two miles from Llantrissant, produced the following species:—*Apion seniculum*, *ervi*, *Gyllenhali*, *platalea*, *subulatum*, *ebeninum*, *Spencei*, *vicinum*, *vicieæ*, *nigritarse*, *carduorum*, and *cruentatum*. I may at the same time record from the same locality:—*Phytobius velatus* and *leucogaster*, *Hypera suspiciosa*, *Erikrinus Nereis*, and *Hydronomus alismatis*.—A. J. CHITTY, 33, Queen's Gate Gardens, S.W.: December 13th, 1892.

*Coleoptera at Craigellachie, N. B., September, 1892.*—While spending a few days here in September, I took a pair of *Agathidium rhinoceros* in a fir stump. The male has the horn on the left mandible fairly well developed. *Aphodius fatidus*, *Hylastes palliatus*, *Anthophagus testaceus*, and *Barynotus Schönherri* occurred on the hills. *Ægialia sabuleti*, *Chilopora rubicunda*, *Bembidium tibiale*, *prasinum*, and *paludosum*, *Tachypus pallipes*, and *Coccinella 5-punctata* were to be found by the River Spey.—ID.

*Hystrihopsylla obtusiceps*, Ritsema, in Scotland.—While on a walk in the Altyre Woods, near Forres, N. B., I found a sick or dying mouse, and from it there fell on the path a gigantic flea. Compared with the mouse it was as if a man was attacked by a flea six inches long. Mr. Waterhouse kindly named it for me as *Pulex talpæ*, from the British Museum collection. Chancing to-day to read Mr. Dale's interesting note on p. 161 of this Magazine for 1890, I send this corroboration of his observation. There was upon the mouse another flea, small and light coloured, *Typhlopsylla musculi*, Dugès. The two fleas mounted side by side are a strange contrast.—ID.

*Mecostethus grossus*, Linn., in Norfolk.—In the latter half of September of this year I spent a fortnight in the "Broads" district of Norfolk, and, though not on an entomological expedition, collected a few *Orthoptera*. My only notable capture was a male specimen of *M. grossus*, Linn., at Iinstead, on September 10th, amongst tall rank grass close to the bank of the river Bure. I was disappointed at not finding others, for though I searched the locality well on three days, I was no further successful.

The last capture I know of in Britain of this species was one recorded from Co. Kerry, by the late Mr. H. N. Ridley, in a note to the Ent. Mo. Mag., vol. xx, p. 215, dated January 8th, 1884; but he did not give the date on which he took it, and called it "*Pachytylus cinerascens*, F." This specimen I found in the British Museum collection, amongst several others of *M. grossus*, Linn., which were at that time labelled, "*Locusta flavipes*, Gmelin," and Mr. Ridley's mistake probably arose through his looking up *L. flavipes*, Gm., in Leopold Fischer's "*Orthoptera Europæa*," or in Brunner v. Wattenwyl's "*Prodromus*," and finding it given there as a synonym of *P. cinerascens*, Fab., which is an error of these authors.

*Stenobothrus bicolor*, Charp., and *Gomphocerus maculatus*, Thunb., I found fairly numerous on the sand dunes on the sea coast near Waxham; and *St. elegans*, Charp., was plentiful in the same locality. *St. viridulus*, Linn., occurred at the Staith, at the head of Hickling Broad.—ELAND SHAW, Wandsworth: Dec., 1892.

## Societies.

CAMBRIDGE ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: November 11th, 1892.

The following addition to Rule V was made:—"That corresponding non-resident Members be admitted into the Society, paying an annual subscription of 2/6."

Mr. Moss exhibited a specimen of *Vanessa Atalanta*, having a pale buff border on the under-side of the posterior-wings, of the same width as the usual red one on the upper-side. Mr. Wells, a variable series of *Cerastis vaccinii* from West Wickham. Mr. Rickard, a specimen of *Plusia moneta*, taken at Cambridge in 1890; a series of *Ephestia Kühniella*, bred from a mill at Cambridge; and some insects which he had found eating moths put into a box to relax: these were pronounced by Dr. Sharp to be larvæ of one of the *Muscidæ*. Mr. Jones, three varieties of *Nemeophila plantaginis*, one nearly black, they were all more or less crippled, and he gave as his opinion that the abnormal coloration and crippling arose from disease. Mr. Farren, long and variable series of *Peronea variegana*, *hastiana*, *Schalleriana*, *comparana*, and other *Tortricæ*.



*November 25th.*

Mr. Bull exhibited a large box of *Lepidoptera* collected at Cambridge in July and August. Mr. Farren, some strongly marked specimens of *Arctia lubricipeda* bred from ova, both parents being var. *radiata*. Mr. Fitzroy, a series of *Xanthia gilvago*, and other *Noctua*, chiefly taken at Cambridge gas-lamps during September. Mr. Rickard, some beautiful varieties of *Arctia lubricipeda*, taken in a garden, and a pale variety of *Abraxas grossulariata*, and a specimen of *Epunda lutulenta*, all from the district. Mr. G. H. Bryan, M.A., read a paper, "Insect Hunting in the Riviera," being an account of five weeks' collecting from the 22nd of March last, with long lists of *Lepidoptera*, *Coleoptera*, &c., captured or observed, and many interesting notes on their habits.—WM. FARRER, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *Dec. 12th, 1892.*—Mr. S. J. CAPPER, F.L.S., F.E.S., President, in the Chair.

Mr. J. Lea, of Canning Street, was elected a Member of the Society.

The President referred to the death of the veteran Entomologist, Mr. H. T. Stainton, and remarked that no one had done more to encourage the study of Entomology. Messrs. G. A. Harker and H. B. Jones gave a paper, entitled, "Notes on a fortnight's collecting in Galway," the principal insects taken being *Zygæna Mimos*, *Miana captiuncula*, two specimens of the rare *Triphæna subsequa* and *Rhodaria sanguinalis*, and exhibited specimens of, and pointed out differences between, English and Irish forms. The President exhibited large Irish *Vanessa urticae*. Mr. Gregson, a remarkably fine specimen of *Prodelia testaceoides*, Gn., bred from a larva taken in a market at Barnsley, and bred by Mr. George Rose. Mr. Stott, on behalf of Mr. H. S. Clarke, *Sphinx convolvuli* from the Isle of Man, and some fine varieties of *Smerinthus tilie*. Mr. Pierce, a specimen of *Ceratocampa regalis*. Mr. J. Herbert Stott, *Sirex gigas* from a North Staffordshire coal mine.—F. N. PIERCE, *Hon. Sec.*, 143, Smithdown Lane, Liverpool: *December 15th, 1892.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *October 27th, 1892.*—C. G. BARRETT, Esq., F.E.S., President, in the Chair.

Mr. Hugh Main, of East Greenwich, was elected a Member.

Mr. Bristowe exhibited *Zygæna trifolii*, Esp., intermediate between the normal form and the yellow variety, and a variety of *Argynnis Paphia*, L. Mr. R. Adkin showed *Odonestis potatoria*, L., bred from larvæ collected in Sussex, the series showing considerable variation. Mr. Barrett exhibited two specimens of *Nonagria concolor*, Gn., one taken in the Yaxley Fen district 30 or 40 years ago, and the other recently captured in a locality in the Midland Fen district, and forwarded by Dr. F. D. Wheeler. Mr. Fenn, referring to the *Eupithecia* from Paisley, assigned to *E. castigata*, remarked that it had now been ascertained that the larva was a pine feeder, and, therefore, it could not be *E. castigata*. Mr. Tugwell said he understood that the specimens were found on pine trunks, but that the larva fed on heather, and he had this year reared the species on heather.

*November 10th.*—The President in the Chair.

Mr. R. South exhibited a portion of two broods of *Coremia ferrugata*, Clerck, and two broods of *C. unidentaria*, Haw., and read notes thereon. Mr. W. F. de V.

Kane exhibited *Stauropus fagi*, L., taken in Ireland; a damaged example of *Noto-donta bicolor*, Hb., taken at a new locality; a photograph of the pupa of *Dianthæcia Barrettii*, Dbl., and said he felt certain from the structure of the pupa that it belonged to the *Dianthæciæ*; among other things in Mr. Kane's box were some curious forms of *Fidonia atomaria*, Tr., *Bryophila muralis*, Forst., *Boarmia cinctaria*, Schiff., *Cymatophora* or, Fb., *Xylophasia monoglyphæ*, Hufn., densely blackish forms of *Camptogramma bilineata*, L., *Hadena oleracea*, L., and *Agrotis lucerneæ*, L. Some interesting notes were contributed by Mr. Kane upon his exhibits, and a discussion followed. Mr. Purdey, of Folkestone, among others, the banded form of *Cidaria suffumata*, Hb.; long series of *Cidaria truncata*, Hufn., reared from ova, and including some beautiful varieties; a specimen of *Colias Hyale*, L., taken at Folkestone in 1891; *Peronea comariana*, Zell.; and a long series of *Eupithecia Stevensata*. Mr. Mera, varieties of *Lycæna Icarus*, Rott., *L. bellargus*, Rott., and *Abraxas grossulariata*, L. Mr. Oldham, a very dark specimen of *Hadena oleracea*. Mr. R. Adkin, *Hypsipetes sordidata*, Fb., and *Melanippe fluctuata*, L., and contributed notes. Mr. Herbert Williams, living larvæ of *Colias Hyale*. Mr. Billups, the Dipterous *Stratiomys potamida*, Mg., and its rare Hymenopterous parasite *Smicra sispes*, Sp., both having been captured in the Plumstead Marshes.—H. W. BARKER and A. SHORT, Hon. Secs.

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ENTOMOLOGICAL SOCIETY OF LONDON: December 7th, 1892.—FREDERICK DUCANE GODMAN, Esq., F.R.S., President, in the Chair.

The President announced the death, on the 2nd December, of Mr. Henry T. Stainton, F.R.S., an ex-President of the Society. A vote of condolence with Mrs. Stainton was passed by the Meeting.

Mr. Frank Bouskell, of 11, Lansdowne Road, Stoneygate, Leicester; Mr. George C. Dennis, of Tower Street, York; Mr. Charles B. Headley, of Stoneygate Road, Leicester; Mr. William Mansbridge, of Luther Place, Horsforth, near Leeds; and the Rev. George W. Taylor, of St. Barnabas, Victoria, British Columbia, were elected Fellows of the Society.

Mr. Jenner Weir exhibited a species of *Acraea* from Sierra Leone, which Mr. Roland Trimen, who had examined the specimen, considered to be a remarkable variety of *Telchinia Encedon*, Linn. It was a very close mimic of *Limnas Alcippus*, the usual Western African form of *Limnas Chrysippus*. The upper wings of the specimen were rufous, and the lower white, as in the model, and the resemblance in other respects was heightened by the almost total suppression of the black spots in the disc of the upper wings, characteristic of the usual markings of *T. Encedon*.

Mr. F. J. Hanbury exhibited a remarkable variety of *Lycæna Adonis*, caught in Kent this year, with only one large spot on the under-side of each upper wing, and the spots on the lower wings entirely replaced by suffused white patches. He also exhibited two specimens of *Noctua xanthographa* of a remarkably pale brownish-grey colour, approaching a dirty white, obtained in Essex in 1891; and a variety of *Acronycta rumicis*, also taken in Essex, with a beautiful dark hind margin to the fore-wings.

Mr. H. J. Elwes exhibited a living specimen of a species of *Conocephalus*, a genus of *Locustida*, several species of which, Mr. C. O. Waterhouse and Mr. McLachlan stated, had been found alive in hothouses in this country.

Dr. T. A. Chapman exhibited immature specimens of *Taniocampa gracilis*, *T. gothica*, *T. populeti*, *T. munda*, *T. instabilis*, and *T. leucographa*, which had been taken out of their cocoons in the autumn, with the object of showing the then state of development of the imagines.

Mr. F. W. Frohawk exhibited a living specimen of the larva of *Carterocephalus Palæmon* (*Hesperia paniscus*), hibernating on a species of grass which he believed to be *Bromus asper*. The Rev. Canon Fowler and Mr. H. Goss expressed their interest at seeing the larva of this local species, the imagines of which they had respectively collected in certain woods in Lincolnshire and Northamptonshire. Mr. Goss stated that the food-plants of the species were supposed to be *Plantago major* and *Cynosurus cristatus*, but that the larva might possibly feed on *Bromus asper*.

Mr. C. G. Barrett exhibited a long series of remarkable melanic and other varieties of *Boarmia repandata*, bred by Mr. A. E. Hall from larvæ collected near Sheffield.

Mr. W. Farren exhibited, and commented on, four varieties of *Papilio Machaon* from Wicken Fen; also a series of two or three species of *Nepticula* pinned on pith with the "Minuten-Nadeln," for the purpose of showing these pins.

Canon Fowler exhibited specimens of *Xyleborus perforans*, Woll., which had been devastating the sugar-canes in the West Indies. Mr. C. O. Waterhouse stated that the larvæ had done great damage to beer-casks in India.

Mr. E. B. Poulton showed, by means of the oxy-hydrogen lantern, a number of slides of various larvæ and pupæ, in illustration of his paper, read at the October Meeting, entitled, "Further experiments upon the colour-relation between certain Lepidopterous larvæ and their surroundings." He stated that he believed that nineteen out of twenty larvæ of *Geometridæ* possessed the power of colour adjustment. Mr. F. Merrifield, the Rev. J. Seymour St. John, and Mr. Jacoby took part in the discussion which ensued.

Mr. F. Merrifield read a paper, entitled, "The effects of temperature on the colouring of *Pieris napi*, *Vanessa Atalanta*, *Chrysophanus Phlaeas*, and *Ephyra punctaria*," and exhibited many specimens thus affected. In the cases of *P. napi*, *C. Phlaeas*, and *E. punctaria*, he remarked that they corresponded with natural variations of these species in regions or seasons associated with similar temperatures; and some curious effects produced by severe temperatures on *V. Atalanta* seemed likely to throw light on the evolution of the complex markings of the *Vanessæ*. Mr. Poulton, Dr. F. A. Dixey, Mr. Elwes, Mr. Jenner Weir, Mr. Tutt, and Mr. Frohawk took part in the discussion which ensued.

Mr. Kenneth J. Morton communicated a paper, entitled, "Notes on *Hydroptilidæ* belonging to the European fauna, with descriptions of new species." Mr. McLachlan made some remarks on the subject of this paper.

Dr. T. A. Chapman read a paper, entitled, "On some neglected points in the structure of the pupa of Heterocerous *Lepidoptera*, and their probable value in classification; with some associated observations on larval prolegs." Mr. Poulton, Mr. Tutt, Mr. Hampson, and Mr. Gahan took part in the discussion which ensued.

Mr. J. Cosmo Melvill communicated a paper, entitled, "Description of a new species of Butterfly of the genus *Calinaga* from Siam."

Mr. W. L. Distant communicated a paper, entitled, "Descriptions of new genera and species of Neotropical *Rhynchota*."—H. Goss and W. W. Fowler, *Hon. Secretaries*.

## ENTOMOLOGICAL NOTES FROM THE EASTERN ARCHIPELAGO.

BY J. J. WALKER, R.N., F.L.S.

We bade farewell to North-Western Australia on October 29th, 1891, leaving Port Darwin at sunrise on that day *en route* for Hong Kong, and, after several days spent in the survey of the "Flinders Bank" and other coral patches situated on the edge of the hundred fathom line of soundings, we arrived at the remote and little-known Island of Damma, about 150 miles to the north-east of Timor, on the morning of November 6th. Anchoring in "Koelewatte Bay," which, although to all appearance a very good harbour, is exposed to the full force of the easterly monsoon, and is much encumbered with coral reefs, we spent five days here very pleasantly. The aspect of the island is most picturesque, the bay in which we were lying being enclosed by volcanic hills of remarkable steepness and bold serrated outlines from 600 to 2000 feet in height, clothed, from high water mark (and even from below this, counting in the mangroves), with a dense, unbroken bright green forest vegetation, forming a most striking contrast to the low and arid Australian shores we had so lately left. The one exception to this general forest clothing was on the right-hand side of the harbour, where the fine volcanic peak, nearly 4000 feet in height, is wooded to only half that elevation, the top being bare, or covered only with low shrubs and grass. Smoke issues almost constantly from the terminal crater, and bright yellow patches of sulphur could be made out distinctly on the higher slopes. The steepness of the slopes of the volcano, and the dense and tangled character of the forest covering them, would appear to make the ascent a matter of considerable difficulty, and none of us mustered up sufficient energy to make the attempt, which, indeed, is rarely accomplished by the natives, although they occasionally bring down small quantities of finely crystallized sulphur for export. All round the north shore of the bay, just above high-water mark, are innumerable little springs and trickles of pure but nearly boiling water, some of the larger ones being even utilized by the natives to cook their food. The island is scantily inhabited by a mixture of Malays and Papuans, who live in two or three small villages on the shores of the harbour, and appear to subsist chiefly on sago, fish and coco-nuts, though they also have pigs and fowls, and grow bananas and other fruits. There is at present no European residing on the island, the "Posthouder," who is the representative of the Netherlands Government, being a *Macassar half-caste*; the island being under the jurisdiction of the

Resident of Amboyna, is visited by him annually, and the Dutch mail steamer which goes the rounds of the Aru, Ké, and other remote eastern islands, calls here for a few hours at intervals of about three months.

I soon found that, although there was no lack of interesting insects in the forest, it was almost impossible to get about owing to the want of paths and the steep and rugged character of the hill sides, and I was very glad to find, at the head of the harbour, a considerable extent of nearly flat land, partly under cultivation, and partly swampy, with a dense growth of sago and coco-nut palms, while the rugged and rocky bed of a fine clear stream, which came down from the hills, enabled me to penetrate about a mile into the interior of the island, which is only ten miles long by about five in width. Butterflies were fairly plentiful, and I secured representatives of about 25 species, many of which bear a very close resemblance to those described and figured by Mr. Butler (Proc. Zool. Soc., 1883, pp. 365—371, and plate 38) from Mr. H. O. Forbes' captures in Timour-laut, about 200 miles to the eastward of Damma. This is especially the case with the species of *Euplœa* and *Danaïs*, the most common and characteristic butterflies of the island. In this remote part of the far east I was much pleased to meet with *Danaïs Plexippus* (*Archippus*), a very large, light coloured ♀ specimen; *Neptis aceris*, or a species very similar to it, was not rare, and some very pretty little *Lycænida* were taken, chiefly along the course of the stream. Here, too, I saw several specimens of a fine *Papilio* (apparently of the "*Ægeus*" group) and of a large light coloured *Charaxes*, but unfortunately failed to secure a specimen of either.

*Coleoptera* were fairly well represented, as I had the good luck to find two or three small clearings of various ages on the skirts of the forest, the dead and partially burned timber in which (although usually very dry) yielded an abundant harvest of small but interesting *Nitidulidæ*, *Cossonidæ*, *Cucujidæ*, *Brenthidæ*, *Tenebrionidæ*, &c., &c., under the loose bark, while two or three handsome Longicorns, and two large and exceedingly conspicuous species of *Buprestidæ*\* were not uncommon, flying very actively in the hot sunshine and settling on logs and stumps, where they were not always easy to secure. A very fine and curious Staphylinid (*Leptochirus* sp.) was not rare in the damp fibrous *débris* left from sago washing on the banks of the stream. Brushing and beating foliage was not very productive,

\* *Cyphogastra abdominalis*, Waterh., and *Pseudochrysodema* (?) *Walkeri*, Waterh. (Ann. and Mag. Nat. Hist. [6], x, pp. 411. 412).

yielding only a few inconspicuous *Curculionidæ*, &c. In the five days I managed to obtain by hard work about 110 species of *Coleoptera*, besides a fair assortment of other insects, a few nice land shells, &c. Birds were tolerably plentiful and variable, the most abundant being a large and very handsome fruit pigeon (*Carpophaga concinna*, Wall.), the deep booming note of which was to be heard everywhere in the forest. A good many of these fine birds were shot by our sportsmen, and proved to be excellent eating; their crops usually contained entire nutmegs, which appear to grow wild in this island, as they are not cultivated here.

Leaving Damma on the afternoon of the 11th, two days' easy steaming through a sea smooth as glass brought us to Amboyna, and at 2 p.m. on the 13th we anchored off the town within a quarter of a mile of Fort "Neuw Victoria." Since I last set eyes on Tahiti, nearly nine years ago, I do not recall to mind a more perfectly beautiful piece of thoroughly tropical scenery than is presented by the noble harbour of Amboyna. It is a deep-water inlet some fifteen miles in length, with an average width of one to two miles, enclosed by rugged but not precipitous hills of ancient volcanic rock, which attain an extreme elevation of 4000 feet, and are everywhere clothed (except where the land has been cleared) with a splendid forest growth, especially dense and luxuriant on the northern side opposite the town. All round the harbour the lower land, which consists almost entirely of upheaved coral rock, is occupied by a nearly continuous belt of coco-nut and nutmeg plantations, and groves of fruit trees in which the town is in great part concealed; and looking towards its upper extremity, the view is bounded in that direction by a distant glimpse of the lofty and rugged mountains in the great Island of Ceram.

We remained here until the morning of the 17th, the time being fully occupied in coaling, giving leave to the ship's company, and making magnetic and other observations. The Resident and the Dutch Officials stationed here vied with each other in showing us the utmost kindness and hospitality, an experience which was repeated at Ternaté. After the lapse of more than thirty years, it is pleasing to find that the memory of Dr. Wallace's residence in these islands is not forgotten, and the Dutch translation of the "Malay Archipelago" is as highly appreciated in the lands of which he gives us so vivid a picture, as the original work is at home.

In this renowned locality I was naturally anxious to make the most of the time at my disposal, and as the weather was fortunately all that could be desired (November being the finest and driest month

in the year at Amboyna), my success, in *Lepidoptera* at least, was very good, exceeding anything which I had done in past years, even in the productive regions of Central America and the Isthmus of Panamá. During the five days of our stay, I caught and set out representatives of more than 100 species of butterflies, upwards of 60 being taken in a single day's work. Nothing can be more enjoyable to the Entomologist than a stroll, net in hand, along the well-kept roads, which extend in every direction from the town, and through the shady and fragrant nutmeg plantations and patches of woodland on either hand, in which large and showy butterflies are so abundant as to form quite a feature in the scene. At the outset I was a little disappointed in not meeting with any of the grand *Ornithoptera*'s for which Amboyna is so famous, and indeed, I saw one specimen only of this genus, a splendid ♂ of *O. Remus*, hopelessly out of reach. Some half-dozen species of *Papilio* were fairly common; and among them the most conspicuous was the magnificent blue *P. Ulysses*, L., of which I saw at least a dozen specimens during my stay, but succeeded in capturing three only in good condition. It is a glorious sight to see this noble insect "at home," looking, except for the tailed wings and more sailing flight, very like one of the great blue American *Morpho*'s, e. g., *M. Peleides*, &c. Though at first sight he seems by no means difficult to catch, he is as wily as his namesake of old, and appears to know exactly the length of reach of the net, and keeps just outside the line of danger. Another insect which pleased me very much was the large white and black "spectre butterfly," *Hestia Idea*, found locally in dense woodland about five miles from the town. No butterfly with which I am acquainted has such a slow, weak, and wavering flight, and, in fact, at a little distance, it looks more like a conjurer's butterfly cut out of a piece of newspaper than a real living insect! The *Danaidæ* were represented by several other fine and handsome species, and *D. Plexippus* (large and richly coloured, with the apex of the fore-wings more produced than in any specimens which I have ever seen before) was common in open waste places, where its usual food-plant, *Asclepias curassavica*, grows freely, and appears to be completely naturalized. Several very fine species of *Euplœa* (one magnificent blue-glossed fellow being over five inches in expanse of wings) were more or less plentiful in shady spots; and in the darker and more tangled portions of the forest, a most conspicuous butterfly was the large *Drusilla Urania*?, which flapped about heavily among the brushwood, frequently settling on leaves and displaying the beautifully ocellated under-surface. In similar situations, along with *Melanitis*,

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*Mycalesis*, and other interesting *Satyridæ*, a fine species of *Parthenos* occurred not rarely, but was almost always worn and torn, and by no means easy to catch. Sunny openings and paths in the nutmeg groves and thickets swarmed with interesting butterflies; the magnificent *Diadema Pandarus* occurred once only, with three or four other species of this fine genus; while *Cynthia*, *Alessaras*, *Precis*, *Neptis*, *Cethosia* (the gorgeous red and black *C. Cydippe*, L., being most conspicuous), *Laogona*, *Elymnias*, *Delias*, *Callidryas*, *Hypochrysops*, *Lycæna* (some very beautiful species), *Pomphila*, and many other genera, were more or less copiously represented. Among the numerous handsome day-flying moths which were met with almost everywhere, the finest and most conspicuous was *Alcidis Orontes*, L., which appears to fly most freely about 4 p.m., and has very much the look of a fine *Papilio* on the wing. The equally large and handsome, but more soberly coloured *Nyctalemon Patroclus* was also found, but more rarely, in dark shady places.

The *Coleoptera*, to my great disappointment, I found to be as scarce and inconspicuous as the *Lepidoptera* were abundant and fine; had I been able to get right away into the forest, where new clearings were being made, I should no doubt have done very much better, but the only clearing within walking distance, although fairly extensive, was very old and dry, and yielded only a few *Rhynchophora*, &c., one fine species of this group, with exceedingly long legs and rostrum, being common enough on the felled timber, but very hard to catch, as it took to wing with the readiness of a fly. I took only one *Longicorn* (a beautiful dark blue species spotted with white), and did not even see a single *Buprestis*! The only beetles that I found at all commonly were an *Opatrum*? and a pretty spotted *Cicindela*, both of which occurred freely in the roads and pathways. On the rocky banks of a fine clear stream, which formed one of my best collecting-grounds, a beautiful dark bronzy species of *Therates* (*Cicindelidæ*), with enormously developed bright yellow labrum and mandibles, was not rare, running rapidly over foliage and taking to wing with great readiness. *Hemiptera* (with the exception of *Cicadæ*, which were abundant and extremely noisy) appeared to be almost as scarce as *Coleoptera*, but I took the largest and finest, and I may add, the most powerfully scented example of the Order which I have ever met with: a huge brown and ochreous-yellow insect, an inch and a half long, allied to *Pentatoma*, but with largely developed hind-legs. Flowers in open spaces attracted large numbers of fine and handsome wasps, hornets, *Scolia*, *Xylocopæ*, and other *Hymenoptera*, which, next to the *Lepidoptera*,



appeared to me to be the Order of insects best represented in Amboyna at the time I was there. Land shells were decidedly scarce, and of the fine and handsome sea-shells for which Amboyna is so renowned, very few came in my way, those which were brought alongside the ship by native dealers being of common species scarcely worth purchasing at any price.

Leaving with regret this most charming and interesting island at daybreak on the 18th, we crossed the equator in long.  $127^{\circ}$  east at 4 a.m. on the 21st, on which day I took several examples of the finest and largest species of the pelagic Hemipteron, *Halobates*, which I have ever met with; and at 7 a.m. on the 22nd we anchored in the roadstead of Ternaté. The magnificent tropical scenery of Amboyna must yield to that of Ternaté, which is altogether of a more bold and striking character, while possessing equal luxuriance of vegetation. The neat little town, almost hidden in dense groves of palms and fruit trees (the mango tree here attaining to a truly gigantic size), stretches along the shore for about a mile, and immediately behind it rises the great volcano to a height of about 5200 feet; at first with a gentle slope, and afterwards more steeply, the whole eastern side being seamed with deep radiating gullies, and covered, except towards the summit, with dense forest, cleared only in a few small patches. From the anchorage the summit is somewhat dome-shaped, and on the right hand side the terminal crater can just be seen, emitting a steady stream of white smoke. The ascent can be made within one day, and was accomplished by two of our officers, a feat to which I did not feel quite equal. Looking across the water to the eastward the view is bounded in that direction by the long forest-clad mountain ridges of Gilolo, which are terminated to the northward in a group of three lofty volcanic cones; but by far the most conspicuous and beautiful feature in the scene is the Peak of Tidoré, a volcanic cone of the most perfect symmetry of outline, surpassing in that respect even the greatly admired form of *Ætna*, though scarcely, if at all, exceeding the volcano of Ternaté in elevation, its clear sharp figure, acutely pointed summit, and complete isolation, cause it to appear much higher. It has been quiescent for a very long period, and, like Ternaté, is wooded almost to the top.

During the three days of our stay here the weather was delightfully fine, although very hot, and I made the most of the time at my disposal for collecting. Although butterflies were not represented by quite so many species as at Amboyna, they were equally abundant as individuals, and included several fine and handsome kinds which I had not before met with. I did not go far up the mountain side,

confining my walks chiefly to the shady paths among the nutmeg gardens, groves of fruit trees, and small patches of wood which, as at Amboyna, extend from the shore for about a mile inland. The nutmeg appears to thrive here to perfection, and is a very handsome little round-headed tree, rarely exceeding 25 or 30 feet in height, with smooth bark and glossy, ovate, somewhat laurel-like leaves. Coffee and cacao are also cultivated to a small extent, as well as sugar cane, rice, &c., &c.

Among my numerous captures were two fine species of the yellow group of *Ornithoptera*, which were often enough seen but rarely condescended to come within reach of the net. Four or five handsome species of *Papilio* were more or less common, and an equal number of species of *Danaïs*, including *D. Archippus* not rarely (its usual food-plant being common), and a form of *D. Chrysippus*, were, with two or three species of *Callidryas*, the most characteristic butterflies of the more open places. Shady paths and thickets produced some beautiful *Lycænidae* and *Satyridae* (*Ypthima*, &c.), as well as an exceedingly pretty dark brown and white species of *Cyrestis* commonly, *Rhinopalpa Sabina*? (rare), *Messaras*, a fine species of *Precis*, *Euplœa*, one species only, &c., &c. *Coleoptera* were much more plentiful than at Amboyna, some nice little Longicorns (*Gnoma*, &c.), *Erotylidae*, *Languriidae*, *Rhynchophora*, &c., being obtained by beating the dead leaves remaining on felled trees, the bark of which produced a few fine *Carabidae*, *Heteromera*, *Passalidae*, &c. On the flower spathe (♂) of a sugar palm (*Saguerus saccharifer*), which was unfortunately just out of reach of my net, I saw quite a number of a fine green *Cetonia* (*Lomaptera* sp.), of which I succeeded in capturing only three specimens, as they flew off with a loud humming noise into the tree tops. On foliage, several beautiful weevils were met with, notably a large *Eupholus* (?), richly marked with metallic emerald-green on a black ground, and a species somewhat like a *Lixus*, completely invested with a thick coating of a pure white powdery substance, not very fugitive to the touch. A little "fire-fly" (*Photuris* sp.?) seemed not rare on shore, and sometimes came off to the ship on calm evenings. The other Orders of insects presented nothing very remarkable during my short stay. Among the "curios" obtained here, the chief were the prepared skins of the Birds of Paradise, for which Ternaté is the great emporium; those brought to the ship for sale were chiefly dry flat skins of the yellow species (*Paradisæa minor*), but well made skins of this, and of some of the better sorts (*P. rubra*, *Cicinnurus regius*, *Parotia sexpennis*, &c.), were to be procured at not unreasonable prices.

(To be continued).

## EDITORIAL.

Having been invited to join the Editorial Staff of the Entomologist's Monthly Magazine, I have acceded to this request, in the hope that in reference to some special branches of the work I may be able occasionally to render useful service. If of late years my attention has been given more especially to Exotic species, it has been from no lack of interest in the constant and patient work done by those who study exclusively British insects, either from a biological or from a systematic point of view. With the help of many willing correspondents, I hope to be able to identify correctly any doubtful species of *Micro-Lepidoptera* that may reach me. If want of leisure and occasional absence from England should prevent me from giving invariably punctual attention to my new duties, the possession of the Zeller collection, and my own larger accumulations, together with a good special library, should give me some advantage in such work as I may find time to do. It will at all times give me great pleasure to render help in determining species if sent in good condition. If I may thus in some small part discharge my debt of gratitude to the well-loved memory of my Predecessor in the office of Editor, the reward will be ample; but I am fully conscious that no one can supply the want of his kindly aid and counsel, to which so many, like myself, are indebted for their first awakening and subsequently sustained interest in his favourite branch of Entomological study.

WALSINGHAM.

Merton Hall, Thetford, Norfolk:

December 22nd, 1892.

A SYNOPSIS OF BRITISH *PSYCHODIDÆ*.

BY THE REV. A. E. EATON, M.A., F.E.S.

(continued from page 8).

ANALYTICAL KEY TO GROUPS, GENERA, &C., OF BRITISH *PSYCHODIDÆ*.

- 1— — Cubitus present, two simple nervures intervening between the forked nervures. Eyes excentrically reniform, approaching each other above. Palpi 4-jointed. Genital basis in ♂ large; inferior ♂ appendages armed with at least one tenacular spinule ... GROUP I. 2.
- α — Cubitus absent, only one simple nervure intervening between the forked nervures. Eyes round and distant. Palpi 3-jointed. Antennæ 15-jointed in both sexes. Genital basis in ♂ when developed very small; inferior ♂ appendages when present unarmed ..... GROUP II. 8.

## GROUP I.

- 2— (1) The radius ends in, or is linked by, a cross-vein to the anterior basal cell. Antennæ in both sexes 16-jointed (except *P. ocellaris*, ♂, which has 15 joints). Tenacular spinules of the inferior ♂ appendages numerous 3.

- $\alpha$  — Radius confluent with, or linked by, a cross-vein to the cubitus beyond the anterior basal cell ..... 5.
- 3—(2) The postical and axillar nervures converge and meet the anal nervure either exactly at the inferior apical angle of the posterior basal cell, or quite close thereto, so as to constitute a tripartite arrangement of nervures. Wing obtusely ovate, with the apex at, or just below, the end of the cubitus ..... 4.
- $\alpha$  — The postical and anal nervures unite, apart from the axillar nervure, beyond the posterior basal cell, usually as far beyond it as the width of the cell's apex (but in *P. mutua* quite close to the cell); and the axillar nervure either ends abruptly, or is linked by a cross-vein to the inferior apical angle of the cell. Wing ovate, or ovate-lanceolate, with the apex usually between the cubitus and the præbrachial nervure, seldom at the end of the cubitus. Antennæ nearly as in *Pericoma*, Section I. See step 4a, below ..... *Pericoma*, Section II.
- $\delta$  — The postical nervure ends in or at the cross-vein closing the posterior basal cell; the axillar nervure either ends abruptly, or is obsoletely linked by a fold or cross-vein to the inferior apical angle of that cell. Wing ovate-lanceolate, seldom ovate ..... *Pericoma*, Section III.
- 4—(3) Wing in ♂ pouched just beyond the anterior basal cell; radius forked near the cell; pobrachial forked still nearer to the cell, or at one-fourth of the wing's length from the base of the costa. In ♀ the forks are sub-opposite each other, at about one-third of the wing's length. Antennæ short, in ♂ reaching to the wing's insertion, in ♀ shorter; 1st joint short, subterete; 2nd stouter, ovoid; the succeeding joints at first nodose, with fusiform nodules at short intervals, but towards the tip moniliform, with oval nodules also at short intervals; flagellum hirsute, with spreading hair. A single species, *U. fuliginosa*, Meigen. Wing, 3 to 3.5 mm. long .. ..... *Ulomyia*.
- $\alpha$  — Wing not pouched in ♂; radial fork sub-opposite to the pobrachial fork, at about one-half the wing's length. Antennæ short, in ♂ not reaching to the base of the wing; 1st joint short, obovoid-oblong; 2nd stouter, globular; flagellum nearly as in *Ulomyia*, but with shorter joints, moniliform, with oval nodules at very short intervals, and hirsute, with verticils of spreading hair ..... *Pericoma*, Section I.
- 5—(2a) Wing broad, obtusely ovate, rounded at the end of the cubitus; anal-axillar region dilated in ♂; basal cells short, both the same length; radius confluent with the cubitus about as far from the end of the anterior basal cell as the cell's apical width, and forked very shortly beyond the fork of the pobrachial nervure. Antennæ in ♂ 15-jointed; 1st joint moderately stout, oval; the other fourteen joints moniliform, mostly with oval nodules at rather wide intervals, and with cupuliform verticils of hair. A single species, No. 31, *P. fusca*, Macquart (Syn. ♀ *P. calceata*, Meigen; ♂ *P. auriculata*, Curt.). Wings brownish-black, with darker markings at the end of the region of bristling hair, viz., a blotch on the radial branches, and the cubitus extending from the fork to about opposite

the end of the anal nervure; another blotch on the pobrachial branches, and the postcal nervure a little beyond the pobrachial fork, partly opposite the end of the axillar nervure; and in the ♀, a spot on the axillar nervure just beyond its middle, sub-opposite to the pobrachial fork; exterior to these markings the hair is thinner or scantier, so as to produce the appearance of a narrow, transverse, paler fascia, extending from the subcosta to the anal nervure; fringes brownish-black, with a whitish gloss on the longer hairs, from opposite the anterior fork to opposite the end of the præbrachial nervure, the shorter hairs thereabouts remaining brown-black; anal-axillar region dilated in the ♂, its nervures in this sex very densely beset with distichous hairs. Last joint in the ♂ tarsus, the last four in the ♀ tarsus glossed with yellowish-white. Superior ♂ appendages 2-jointed; basal joint stout, rounded outwards and above; 2nd joint twice the length of the former, very slender and small, slightly dilated towards the base, and then roundly falcate, like the blade of a reaping-hook, pointing inwards and downwards, with the tip slightly averted. Wing, 3 to 4 mm. long ..... *Pericoma*, Section V.

♂ — Wing ovate-lanceolate ..... 6.

6—(5a) Apex of wing rounded between the cubitus and præbrachial nervure. Tenacular spinules of the inferior ♂ appendages numerous ..

*Pericoma*, Section IV.

♂ — Apex of wing acute exactly at the end of the præbrachial nervure. Tenacular spinules of the inferior ♂ appendages few (one, two, or three, according to the species). Antennæ in ♂ 14-jointed; joints one and two very short; the other twelve joints moniliform, with globular nodules at long intervals, eleven of them with oval-cupuliform verticils of hair, the last of these containing the terminal joint ..... 7.

7—(6a) Dorsal hair bristling on every abdominal segment. Ovipositor rostrate, horny, exerted ..... *Psychoda*, Section I.

♂ — Dorsal hair bristling on only the 1st abdominal segment. External ♀ genitalia valvular, short, and obtuse. Inferior ♂ appendages each with two tenacular spinules. A single species, No. 6, *Ps. humeralis*, Meigen (Syn. *Ps. bullata* [Haliday, MS.], Walker). Wing dark rich brownish, with glossy fringes to match, but the fringe at the base of the costa, of the basal callosity, and of the anal lobe, matches the pubescence of the meso- and metanotum in colour, shifting with change of posture from light ferruginous or glossy bronze-brown to flaxen; bristling hairs from certain standpoints black. Wing, 1·5 to 2·5 mm. long....

*Psychoda*, Section II.

#### GROUP II.

8—(1a) Axillar nervure well-developed. Superior ♂ appendages terminated by a compressed claw. Inferior ♂ appendages minute, compressed obovate. A single species, *T. urbica* (Haliday, MS.), Walker (Syn. *Psychoda aurea*, Zett.). Wing, 2·75 to 3·5 mm. long ..... *Trichomyia*.

♂ — Axillar nervure extremely short, almost transverse. Superior ♂ appendages terminated by an acicular spinule. A single species, *S. silacea* (Haliday, MS.), Walker. Wing, 1·5 to 1·75 mm. long ..... *Sycorax*.

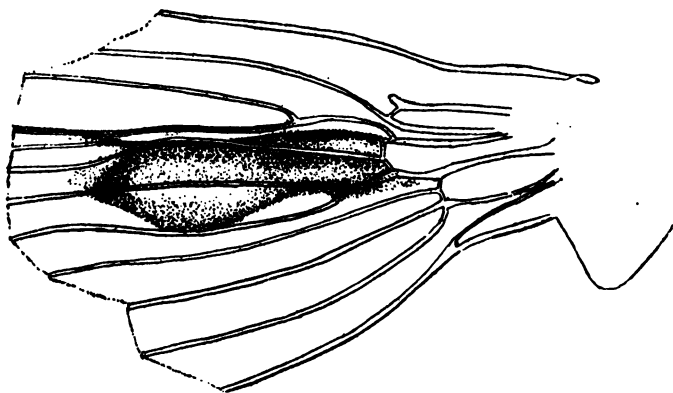


Fig. 1.

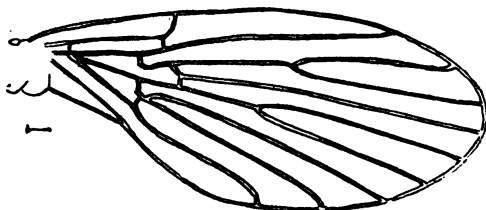


Fig. 2.

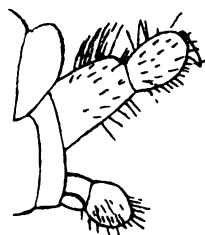


Fig. 2a.



Fig. 2b.

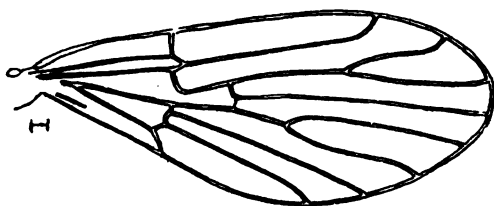


Fig. 3.



Fig. 3a.



Fig. 3b.

## EXPLANATION OF FIGURES.

Fig. 1.—*Ulomyia fuliginosa*, part of wing of ♂ from above,  $\times 47$ .

„ 2.—*Trichomyia urbica*, wing of ♂, denuded,  $\times 20$ ; 2a, appendages of ♂ from side,  $\times 62$ ; 2b, superior appendage more highly magnified and turned to show claw.

„ 3.—*Sycorax silacea*, wing of ♀ denuded,  $\times 30$ ; 3a, superior appendages of ♂, from above,  $\times 230$ ; 3b, inferior appendage, obliquely from side.

(To be continued).

## HEMIPTERA IN THE NORTH OF IRELAND.

BY THE REV. W. F. JOHNSON, M.A., F.E.S.

While collecting *Coleoptera* I have picked up such *Hemiptera* as I happened to meet with. These have been identified for me by the kindly aid of Messrs. J. W. Douglas and E. Saunders. It has been suggested to me that a list of these captures might be of some interest, and hence this effusion. Of the localities mentioned, Bundoran and Ardara are in Donegal, Carlingford and Greenore in Louth, Holywood in Down. These are on or near the sea coast. Of the others, which are inland, Beleek is in Fermanagh, Broughshane in Antrim, and Kildress near Cookstown in Tyrone. Newtown Hamilton is about 12 miles S., Churchill 10 miles, Loughgall 4½ miles, and Clonmacate and Maghery 14 miles N. of Armagh, and all in this County. The last two are on the shores of Lough Neagh. Coney Island is in Lough Neagh, opposite Maghery, and about half a mile from the nearest shore.

I have followed the nomenclature and arrangement of the Catalogue of Messrs. Saunders and Edwards, and I have given such notes of the scarcity or abundance of species as my limited knowledge admits of.

## HETEROPTERA.

*Tropicoris rufipes*, Lin., Armagh, Loughgall, fairly common.

*Acanthosoma hæmorrhoidale*, Lin., Armagh, one specimen. *A. dentatum*, De Gt., Armagh. *A. interstinctum*, Lin., Armagh, Churchill, pretty common.

*Nysius thymi*, Wolff, Bundoran.

*Stygnus rusticus*, Fall., Armagh, not common. *S. pedestris*, Fall., Armagh, common. *S. arenarius*, Hahn, Armagh, pretty common.

*Drymus sylvaticus*, Fab., Armagh, Holywood, Newtown Hamilton, common.

*Scolopostethus affinis*, Schill., Armagh. *S. neglectus*, Edw., Carlingford. *S. decoratus*, Hahn, Carlingford, Newtown Hamilton.

*Orthostira brunnea*, Germ., Armagh, Kildress, in moss, not common. *O. cervina*, Germ., Armagh, one specimen. *O. parvula*, Fall., Armagh, Newtown Hamilton, in moss, pretty common.

*Monanthia cardui*, Lin., Armagh, sweeping, rare.

*Hydrometra stagnorum*, Lin., Armagh.

*Microvelia pygmaea*, Duf., Armagh, one specimen, in moss.

*Velia currens*, Fab., Armagh, Newtown Hamilton, Ardara, Lough Neagh on shore of Coney Island. At Newtown Hamilton, it was in a boggy pond; at Ardara in a disused quarry; and in neither of these cases was there an outlet, though in wet weather the rise of water would give one. At Lough Neagh the specimens were round Coney Island, where there is no current or movement more than that caused by the wind.

*Gerris paludum*, Fab., Ardara. *G. Costæ*, H.-S., Newtown Hamilton, Ardara, in boggy ponds, common. *G. lacustris*, Lin., Armagh, Newtown Hamilton. *G. odontogaster*, Zett., Armagh. *G. argentata*, Schumm., Armagh, one specimen in flood rubbish in December.

*Nabis lativentris*, Boh., Armagh. *N. flavomarginatus*, Scholtz, Armagh. *N. limbatus*, Dahlb., Loughgall. *N. fesus*, Lin., Armagh, common.

*Salda saltatoria*, Lin., Armagh. *S. pallipes*, Fab., Armagh. *S. orthochila*, Fieb., Armagh. *S. littoralis*, Lin., Lowry's Lough, Armagh, shores of Lough Neagh, common. *S. cincta*, H.-S., Armagh, common.

*Cimex hirundinis*, Jen., Armagh, on a dead swallow.

*Anthocoris nemoralis*, Fab., Armagh, Churchill, Ardara, common. *A. sylvestris*, Lin., Armagh, Churchill, Kildress, common.

*Miris calcaratus*, Fall., Armagh, common. *M. lavigatus*, Lin., Armagh, Loughgall, common. *M. holsatus*, Fab., Armagh, Loughgall.

*Leptopterna ferrugata*, Fall., Armagh, Ardara, Beleek, common.

*Monalocoris filicis*, Lin., Bundoran.

*Phytocoris tilia*, Fab., Armagh, one specimen. *P. longipennis*, Flor, Armagh, one specimen. *P. ulmi*, Lin., Armagh, rare.

*Calocoris striatellus*, Fab., Broughshane, Loughgall. *C. sexguttatus*, Fab., Armagh, common. *C. fulvomaculatus*, De G., Broughshane. *C. bipunctatus*, Fieb., Armagh, Bundoran, Ardara, Beleek, common. *C. roseomaculatus*, De G., Armagh.

*Oncognathus binotatus*, Fab., Armagh.

*Plesiocoris rugicollis*, Fall., Ardara.

*Lygus pratensis*, Fab., Armagh, Newtown Hamilton, common; var. *campestris*, Fab., Ardara. *L. contaminatus*, Fall., Armagh. *L. pabulinus*, Lin., Armagh, Ardara, common. *L. pastinacæ*, Fall., Armagh. *L. cervinus*, H.-S., Loughgall. *L. Kalmii*, Lin., Armagh.

*Liocoris tripustulatus*, Fab., Armagh, very common on nettles.

*Rhopalotomus ater*, Lin.—Armagh, Loughgall, Beleek, common; the var. with red thorax at Loughgall and Lowry's Lough, Armagh.

*Campyloneura virgula*, H.-S., Churchill.

*Globiceps selectus*, Fieb., Armagh, common, by sweeping meadows.

*Mecomma ambulans*, Fall., Armagh.

*Cyrtorrhinus caricis*, Fall., Armagh.

*Orthotylus marginalis*, Reut., Ardara.

*Psallus ambiguus*, Fall., Armagh, Ardara. *P. betuleti*, Fall., Armagh, Loughgall. *P. variabilis*, Fall., Loughgall. *P. Falleni*, Reut., Churchill. *P. varians*, H.-S., Coney Island. *P. sanguineus*, Fab., Armagh.

*Plagiognathus viridulus*, Fall., Armagh, Greenore, common. *P. arbustorum*, Fab., Armagh, Maghery, Churchill, Bundoran, Ardara, very common.

*Asciodema obsoletum*, D. and S., Ardara.

*Nepa cinerea*, Lin., Armagh.

*Notonecta glauca*, Lin., Armagh, Ardara, &c.; var. *maculata*, Fab., Clonmacate.

*Corixa Geoffroyi*, Leach, Armagh, Ardara, common. *C. atomaria*, Ill., Holy-



wood. *C. Sahlbergi*, Fieb., Armagh, Ardara, Holywood, common. *C. Linnæi*, Fieb., Armagh. *C. semistriata*, Fieb., Armagh. *C. venusta*, D. and S., Holywood, Ardara. *C. striata*, Lin., Armagh, Holywood. *C. Falleni*, Fieb., Armagh. *C. distincta*, Fieb., Armagh, Ardara. *C. masti*, Fieb., Armagh. *C. fossarum*, Leach, Armagh, Ardara, common. *C. Fabricii*, Fieb., Newtown Hamilton, Holywood, Ardara. *C. præusta*, Fieb., Newtown Hamilton, Armagh; var. *Wollastoni*, D. & S., Ardara. *C. carinata*, Sahlb., Ardara.

#### HOMOPTERA.

*Cixius pilosus*, Ol., Armagh. *C. cunicularius*, Lin., Armagh, Ardara, common. *C. servosus*, Lin., Churchill.

*Aphrophora alni*, Fall., Maghery, Bundoran, Ardara.

*Philenus spumarius*, Lin., Armagh, Bundoran, Ardara, common. *P. lineatus*, Lin., Ardara.

*Ulopa reticulata*, Fab., Newtown, Hamilton.

*Bythoscopus alni*, Schr., Ardara. *B. rufusculus*, Fieb., Coney Island, Ardara. *B. flavicollis*, Lin., Clonmacate, Loughgall, Ardara.

*Evacanthus interruptus*, Lin., Armagh, Ardara.

*Tettigonia viridis*, Lin., Armagh.

*Chlorita viridula*, Fall., Ardara.

Winder Terrace, Armagh :

October 26th, 1892.

#### *PIMPLA EPEIRÆ*, N. Sp.

BY G. C. BIGNELL, F.E.S.

Black; second and third segments of abdomen partially ferruginous, legs ferruginous, except apex of hind tibiæ, and apex and the last joint of all the tarsi.

Head smooth; mesothorax and scutellum slightly punctured and shining; Metathorax larger punctured, with a superomedial area.

Antennæ: flagellum 22-jointed, as long as abdomen, the under-side slightly fuscous, gradually darker at the apex.

Abdomen nearly twice as long as head and thorax; aculeus nearly as long as thorax; first segment about as long as the width at the apex; second, third, fourth, and fifth about twice as broad as long; the remainder tapering to the apex; segments deeply punctured; second to fifth with the apical third smooth, raised, and shining.

Wings: a whitish dot on the inner part of the stigma.

Areolet pentagonal, about one-half of the outer cubital recurrent nerve, and two portions of the exterior discoidal recurrent are colourless.

Length, 9 mm. (including aculea 2); wings, 13 mm.

Described from four females bred July 7th, 1891, from cocoons in egg-bag of a spider, *Epeira cornuta*, obtained in June, at Ivybridge, South Devon. Cocoons light yellow, 10 mm. long, and 4 broad, forming a compact mass within the egg-bag.

Stonehouse, Devon :

January, 1893.

## WEST INDIAN COCCIDÆ.

BY T. D. A. COCKERELL, F.Z.S.,

WITH DESCRIPTIONS OF NEW SPECIES BY A. C. F. MORGAN, F.L.S.

The species discussed below were found on cocoa-nut leaves sent to the Institute of Jamaica by Dr. F. A. Sinclair, who gathered them at Catherine Hall Estate, near Montego Bay, on December 17th, 1891. Somewhat earlier specimens had been received from the same source, through Mr. W. Fawcett, F.L.S., head of the Botanical Department. On receiving the specimens, I made a preliminary examination of them, and shortly after sent some, together with notes and sketches, to Mr. D. Morris, Assistant-Director at Kew Gardens. These were forwarded, through Mr. J. W. Douglas, to Mr. Morgan, at Oporto, who was so kind as to work them out in detail, and prepare the descriptions of two new species.

## (1). MYTILASPIS BUXI, Sign.

There is a very small scale in great abundance on the leaves, which I believed would prove identical with the *Diaspis vandalicus*, Galvez, of Cuba (see "Insect Life," vol. ii, p. 278; vol. iii, p. 296). In my examination of the specimens, I found what appeared to me to be a *Chionaspis*, which I accordingly called *Chionaspis vandalicus*. Some of the leaves were sent to Mr. Morgan, who found thereon no *Chionaspis*, but *Mytilaspis buxi*, and the new species described below as *Diaspis tentaculatus*. The ♂ scales, which I had considered to belong to *Chionaspis vandalicus*, Mr. Morgan thought referable to the *Diaspis*.

On hearing this, I examined a cocoa-nut palm in Kingston, and found thereon ♀ scales and white tricarinated ♂ scales clustered together in such a manner as to leave no doubt that they were one species. This was certainly not the new *Diaspis*, and could be nothing but *Chionaspis*; so specimens were forwarded to Mr. Morgan for his opinion. The reply came that they were indeed *Chionaspis*, the same species as I had sent before from a tree with pinnate leaves in Kingston, and that they were very much like *C. minor*, Maskell.

Mr. Morgan had written to Mr. Maskell about this *Ch. minor*, sending him a drawing of my species, and under date 14th May I hear from him:—"I have also had the satisfaction of receiving from Mr. W. M. Maskell, of New Zealand, an answer to my enquiry, relative to the species which I suggested might prove to be *Chionaspis minor*, Mask. Mr. Maskell writes: 'from the drawing which you enclose I think that your insect from Jamaica is clearly my *Chionaspis minor*. The contiguous median lobes, the arrangement of the marginal spines, and the numbers of orifices in the groups are so similar that the identity is manifest.' Therefore, I think, the above opinion may be considered conclusive, as *Chionaspis minor* is Mr. Maskell's own species, and he identifies it, from a drawing. It is interesting to note the existence of the same species in two countries so far from each other as New Zealand and Jamaica! whilst up to the present it does not appear to have been observed in any other locality."

Dr. Henderson, of Kingston, informs me that formerly there was a regular traffic to New Zealand, *via* Jamaica and Panama, so *Ch. minor* may have been taken from one place to the other on plants. It is impossible to suppose that it is really indigenous in two such distant localities!

Mr. Morgan noted that some of the first lot of *Ch. minor* I sent him had been attacked by parasites.

Reverting now to the *Mytilaspis*; Mr. Morgan wrote of Montego Bay examples, that they were "*Mytilaspis pandani*, Comst., which I take to be = *M. buzi*, Sign., for reasons explained in 'Observations on Coccidæ, No. 8.'" This refers to a small scale, which I had undoubtedly confounded with *Chionaspis*. The ♀ scales are very similar, though the *Mytilaspis* is, of course, narrower, and notwithstanding the generic difference, there is a good deal of similarity in the characters of the terminal portion of the ♀. The *Diaspis* resembles the *Chionaspis* in its ♂ scale, but the ♀ is very different.

As to the name *vandalicus*, I have seen no proper description of the species, and as there is no means of telling which it is, the term had better be dropped.

Recently I have found a reddish-brown *Mytilaspis* in Kingston, on cocoa-nut, which seems to me to be identical with *M. pandani*, Comst., but it has a different appearance from the Montego Bay scale, being larger and more strongly coloured. The terminal segments of the females are very similar. This same larger scale also occurs on *Dracæna*, as recorded in "Journ. Inst. Jamaica," 1892, p. 55.

Whether the differences here observed indicate two species must for the present remain doubtful.

## (2). FIORINIA FIORINÆ (Targ.-Tozz.).

= *Uhleria fiorinæ* (Targ.), Comst.

= *Uhleria camelliæ* (Comst.), Comst.

This species was fairly common on the leaves, and Mr. Morgan agrees with my identification, though he calls the species *Uhleria fiorinæ*. He writes that it is "*Fiorinia camelliæ*, Comst., afterwards altered in nomenclature by Prof. Comstock to *Uhleria camelliæ* (Comst., 2nd Rep. Corn. Un. Exp. Stn., 1883, p. 111), and which I take to be equal to *Fiorinia pellucida*, Targ.-Tozz., = *Diaspis fiorinæ*, Targ.-Tozz."

I follow Mr. Morgan's decision as to the identity of the European and American species, but cannot agree that the name *Fiorinia* should be abolished. The oldest generic and specific names must be used, so long as we can be certain what they refer to, and the combination *Fiorinia fiorinæ* is not contrary to usually-accepted rules. It is the custom now, with many zoologists, even to admit generic and specific names absolutely alike, such *Cossus cossus*, and, where priority demands it, this seems to me advisable.\*

## (3). ASPIDIOTUS PALMÆ, n. sp.

This was common on the leaves, and also occurs in Kingston. I have found it only on cocoa-nut, whereas *A. ficus* (Riley), Comst., and *A. articulatus*, Morg., which also occur on cocoa-nut in Kingston, infest a great variety of plants.

\* Mr. Morgan, having read the above, writes: "I do not see any reason why the old generic name should not be maintained as Mr. Cockerell proposes. I note that Mr. Maskell also retains the original generic name."

On December 22nd I wrote to Dr. Sinclair: "This very closely resembles *A. rapax*, which occurs in Florida; but it differs from it in some slight microscopical characters, and, so far as I know, *A. rapax* has never been found on the cocoa-nut. Therefore, I call it var. *palmae*; should it prove a distinct species, it may be known as *Aspidiotus palmae*." I also gave a slight description of it, as *A. rapax*, var. *palmae*, in my cyclostyled "Notes from the Museum," No. 5, which was published in some of the Kingston newspapers.

Mr. Morgan has examined this form, and compared it with *A. rapax* (a species I did not then possess), the result being that he proves it sufficiently distinct, and regards it as undescribed. His account of the specific details is very much better than my own incomplete notes on the subject, so I need only give a few characters not mentioned by him.

Scale pale brown, with the exuviae black, and on one side of the centre; outline seen from above slightly oblong. Female oblong, narrower posteriorly, lateral margins of the middle segments produced into tubercles, the bases of which are slightly wider than the length of either side. The ends of these tubercles emit a few hairs. Colour of female very pale lemon. The median lobes of the terminal segment are tinged with brown. The female resembles in shape that of *A. ficus*, but it has about five lateral tubercles, whereas in the latter I have observed only three. *A. articulatus* lacks the tubercles altogether, and is very different in appearance.

Mr. Morgan writes as to these tubercles: "I think all the *Diaspina* (females) have the protruding lateral terminations to their segments, at least if they have been fertilized, but they vary according to the condition of the insect."

I have also found them to vary very much under different circumstances, but I believe the number, and to some extent the form, is often a help to the identification of species, and should be mentioned in descriptions. In *A. articulatus* I have been unable to find anything that could properly be called a lateral tubercle, although I have examined very many specimens. The segments of these ♀ *Diaspinae* work after the manner of a concertina, so that often there is a fine display of tubercles on one side, while those on the other are "shut up."

#### (4). DIASPIS, *n. sp.*

This is described by Mr. Morgan below; I did not find any on the leaves I examined, except the male scales above referred to. I have some ♀ scales found in Kingston, which seem to be this, but the median lobes are not serrate on their inner margins. There were also an apparently new *Aspidiotus* of small size, and a curious creature which I regard as a new species of *Asterolecanium*, or an allied genus, on the leaves, but they have not yet been sufficiently examined to be described.

T. D. A. COCKERELL.

Institute of Jamaica, Kingston, Jamaica.

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#### ASPIDIOTUS PALMÆ, *n. sp.*

♀ scale identical in all respects to that of *A. rapax*, Comst. The insect has four groups of ventral glands, each group consisting of two to seven. The median lobes are wide apart, and suddenly compressed towards the apex. The 2nd lobe is smaller, and the 3rd lobe is still more rudimentary, with acute apex. There are two wide branched plates between the median lobes, two similar ones between the

median and 2nd lobe, two again, if not three, between 2nd and 3rd lobes, followed by three or four more similar plates. The spines are as usual, but rather small, situated one at the base of each lobe, and one further along the margin, indicating, as I think, the limits of suppressed or rudimentary segments. Although it is difficult to observe the spines at the base of the median lobes, the globular basal point may be seen. The differences between the two species are very marked. The characteristic peculiarity of this species consists in its plates, which are large, branched antler-like. Moreover, it has four groups of ventral glands, whilst *A. rapax* has none.

#### DIASPIS TENTACULATUS, *n. sp.*

♀ scale more or less circular, flat, greyish-white, with exuviae on one side usually, but not projecting beyond the limits of the scale. The median posterior lobes are convergent at the base, and divergent at the apex, and their inner lateral margins serrate. The 2nd and 3rd lobes are *tri*-lobed, and there is a 4th lobe, somewhat rudimentary. There is a simple unbranched plate between each set of lobes, and beyond the 4th lobe there are several simple plates. The spines are very small, and rather difficult to observe, but they appear to be in the usual positions, at the base of the lobes. There are five groups of ventral glands, and between the posterior groups is situated the anus. The anterior groups consist of about eight or ten, and the lateral groups of about ten or fifteen glandular organs.

The ♂ scale is small, white, tricarinated, and of the usual shape and character of male scales of the genus *Diaspis*.

ALBERT C. F. MORGAN.

Villa Nova da Gaya, Portugal.

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#### DESCRIPTION OF THE LARVA OF *ORTHOZIA SUSPECTA*.

BY GEO. T. PORRITT, F.L.S.

In 1891, *Orthosia suspecta* seemed to be unusually abundant in all its localities, and was especially so at York, where throughout August it occurred in the utmost profusion. Mr. William Hewett, of that city, obtained eggs from specimens he captured there, part of which he very kindly sent to me, and part to Dr. Chapman, of Hereford. Mine, which I received on September 20th, were deposited in a batch at the bottom of a chip box, and were of ordinary globular form, very glossy and smooth, the colour pale pinkish-brown. They were kept outdoors all winter, and at quite the end of April began to hatch out. Unfortunately, I had to be in London at the time, and, through my inability to properly attend to them there, all died. Fortunately, Dr. Chapman was more successful with his, and on May 18th, he very kindly let me have two larvæ, which were then nearly full-grown, and I described them at once as follows:—

Length, when at rest, about three-quarters, when crawling, seven-eighths, of an inch, and moderately plump in proportion; head small and polished, the lobes rounded; it is rather narrower than the second, and considerably narrower than the

third, segment; body rounded, slightly swollen from the segmental divisions; it gradually thickens from the head to the fifth segment, beyond which it is of nearly uniform width to the twelfth, when it tapers off rather abruptly; segmental divisions well defined, the skin smooth and velvety.

Ground-colour, as far as the spiracular region, purplish-brown; head yellow-brown, strongly marked with black, a streak of black extending from the top of each lobe being most noticeable; a narrow, polished, black plate on the second segment; dorsal line almost clear white, and on the dark ground is very conspicuous; subdorsal lines very indistinct—except in the plate on the second segment, where they show clearly—and seem to be composed of an interrupted series of faint bluish-white streaks and dots; on each segment between the dorsal and subdorsal lines, is a large, square, purplish-black mark, and these marks, together with the pale dorsal line, form the most noticeable feature in the larva. There are no perceptible spiracular lines, but the spiracles are black and very distinct. The usual trapezoidal dots small and indistinct, of the pale colour of the subdorsal lines.

Ventral area and prolegs uniformly dingy glaucous-green, with a purplish tinge; the anterior legs pale straw-colour, and having immediately in front, and also immediately behind each of them, a short black streak.

The larvæ fed up well on birch, and on or about May 23rd, both disappeared below the surface of the earth for pupation.

The moths, perfect specimens, emerged together on June 16th, a month earlier than the species is usually seen in a wild state in Yorkshire.

Huddersfield: *January 7th*, 1893.

#### ADDITIONAL NOTES ON THE LARVA OF *ORTHOSIA SUSPECTA*.

BY T. A. CHAPMAN, M.D., F.E.S.

As Mr. Porritt did not see the young larva of *O. suspecta*, I add a few notes of my own observations:—

The eggs were packed closely together side by side, and appeared to have been thrust in between two surfaces, and it resulted both from this (if so) and also from a real identity, that they reminded me greatly of those of *G. vaccinii*. A closer examination only confirmed this impression, the diameter was 0·8 mm., most of the eggs were more or less distorted, indented, or flattened, so that it was only by securing a favourable specimen that it was seen to have a fine cone, surrounded by an irregular raised wall, formed by the summits of the ribs, about thirty-one in number, and badly defined. The eggs were in places covered by a pavement of battledore moth scales, whether purposely, or by accident, I could not be sure.

I got some *vaccinii* eggs to compare, and could really detect no difference. The young larvæ of both were much alike, but *suspecta* tied its leaves together more or less, a habit which I have never noticed in *vaccinii*, the larva being satisfied with such shelter as curled or applied leaves afford.

When in their *penultimate* skins, they were of almost exactly the same outline, *suspecta* much darker in colouring. In tubercles, head hairs, plates on second and

fourteenth segments, and especially in the forms of the marblings, from which the markings of *Orthosia* larvæ result, they are identical; both also taper remarkably to the head, a feature which is even more pronounced in adult *suspecta*, but is nearly lost in adult *vaccinii*. The most evident difference (apart from the darker colouring of *suspecta*) is that in *suspecta* the pale dorsal line is very marked and distinct, and the sub-trapezoidal line is broken into by the marblings, so as to be discontinuous, though recognisable as a line. In *vaccinii* the sub-trapezoidal is more pronounced than the dorsal line, it is ragged, but broad enough not to be quite interrupted by the marblings. The dorsal line in *vaccinii* is narrow, and differs little from the ground-colour, though it is as smooth and well-defined as in *suspecta*.

In accordance with the darker colour of *suspecta*, the pale dots around the tubercles are smaller, and hardly form a feature in the general facies of the larva, and in the case of the anterior trapezoidals, they do not extend in front of the tubercles. Similarly the plate on second segment has its dark areas both darker and rather larger in *suspecta*.

The lateral line separating the darker dorsal from the paler ventral portion of the larva has the same disposition in both. It takes in the pale area round the anterior spiracular tubercle, from which a pale line goes beneath the spiracle, thus claiming the spiracle for the line or dorsal area. On the eleventh and twelfth segments the spiracles are plainly in the dorsal area in both species. In *suspecta* the inner margin of the sub-trapezoidal line on the dorsal plate of segment two is curved inwards; in *vaccinii* nearly straight. All this takes long description, but, as a matter of fact, the actual differences are trifling; so that up to this point *suspecta* and *vaccinii* present only trifling specific differences.

In the last skin *suspecta* retains the small head, and becomes so richly coloured as to remind one of *rubricosa*.

The pupa is very like that of *vaccinii*, but more slender and tapering. The anal armature is also similar. In *suspecta* the wrinkled boss is larger and longer, and so the secondary spines which cross the two principal lyre-shaped spines in *vaccinii*, arise further from the apex, and do not do more than fully reach them.

In larvæ and pupæ the species of *Xanthia* and *Orthosia* differ from each other, often in small matters only, and *Glæa* is not far off, but *suspecta* much more resembles *Glæa* than it does *Xanthia* or *Orthosia*, at least as pupa, and as egg, and young larva.

Firbank, Hereford :  
January, 1893.

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*Colias Edusa* in January at Algiers.—Apropos of the note at p. 17 ante, concerning *Colias Edusa*, you may like to know that the last time I saw one here was yesterday morning. It flew about as if it were laying eggs.—A. E. EATON, Algiers: January 10th, 1893.

*Erroneous figures of the larva of Colias Hyale, L.*—At meetings of the South London Entomological Society last month (November) full-grown larvæ and also a pupa of *Colias Hyale* were exhibited by Messrs. Hawes and Williams, eggs having been obtained by Mr. Hawes from a captured female, and the larvæ successfully reared. They were so similar to those of *C. Edusa*, that they might readily have

been taken for that species. As far as I remember the principal differences consisted in a greater abundance of minute black dots on the soft green surface, and the paler or more whitish spiracular line.

But this was not by any means the style of larva which I had seen figured as that of *Hyale* in several recent works. Dr. Lang, for instance, in the "Butterflies of Europe," although he actually furnishes a most accurate description of this larva, figures it of a greenish-yellow, with broad, blue-green, black spotted dorsal, subdorsal, and spiracular stripes, and the segments deeply divided: apparently the larva of a *Noctua* of some kind, but utterly unlike *Hyale*. It is drawn in a noticeable, curved position, on a sprig of vetch—*Hippocrepis* apparently. On turning to Kirby, a larva in the same curved position, and upon the same plant—if there is a purple *Hippocrepis*—does duty for that of *Hyale*, but in this case the *Noctua*-resemblance is intensified, and it seems to be the green variety of that of *Hadena pisi*. Of course, this is also the case in the original work of Berge; and in Dr. Ernst Hofmann's new work, "Die Raupen der Schmetterlinge Europas," the same, or nearly the same, larva appears, the broad, subdorsal stripe broken into spots, yet in the same position, and only placed upon a different vetch—a cultivated *Vicia*.

Lang's plate directs us to Hübner, and after some search through Hübner's figures of Lepidopterous larvæ, the same curved larva is found upon the now familiar sprig of *Hippocrepis*, but with the name "*Palæno*." Below it, on the same plate, is a capital figure of the genuine *Hyale* larva, to which is given the correct name, while on the following plate are two figures of *Edusa* larvæ, also called *Hyale*. So it looks as though a simple error had been made in copying from the previous plate the figure marked *Palæno*, instead of that marked *Hyale* (I would gladly give the references, but neither the plates nor the figures are consecutively numbered). But this explanation is insufficient, for in the great work, "Sammlung Europäische Schmetterlinge," the perfect *Hyale* is figured under the name of *Palæno*, and *Edusa* under that of *Hyale*; and evidently it has been taken for granted that names were applied similarly to the larvæ. It now seems, however, that Hübner had ascertained a correction in this respect before the larvæ were figured.—CHAS. G. BARRITT, 39, Linden Grove, Nunhead, S.E.: December, 1892.

*Occurrence of Steganoptycha pygmæana*, Hb., in Norfolk.—The capture of this species in this country has been so seldom recorded, that the news of its capture in Norfolk is sure to prove interesting to those who turn their attention to *Micro-Lepidoptera*. For some years past, during March and April, I have made short journeys to districts abounding in spruce fir, with the object of searching for the *Coryx pygmæana* of Stainton's Manual. The description of *C. pygmæana*, as given in that work, is now known to apply to *Steganoptycha abiegana*, Dup., and Mr. Warren's able notes upon the two closely allied species (*S. pygmæana* and *S. abiegana*) appearing in the Ent. Mo. Mag. (vide vol. xxiv, p. 6), only stimulated me to further exertions, for I still believed that one, or both of them would some day be found to occur in this district. In 1888 my expectations were beginning to be realized, for I then took a single worn specimen of a *Tortrix* which at the time I thought to be *S. abiegana*. In April, 1889, I again met with two specimens, but these were, alas! also in worn condition. Last year, however, good fortune favoured me, for I succeeded in taking a nice series of *S. pygmæana*, Hb., which so far appears to be regarded



as the rarer of the two insects. Several of my captures are in fine condition, and from the circumstance that in a few of them the ground-colour is abnormally dark, the markings more defined, and three or four blackish dots or lines visible in the ocelloid portion of the wings, I came to the conclusion that I had probably taken both species. Nine specimens were therefore picked out and sent to my friend, Mr. C. G. Barrett, for examination, and he writes me, "they are all *S. pygmaæna*." I may add, that since the return of these specimens from Mr. Barrett, I have turned to the description of the two species given by Mr. Warren in the Ent. Mo. Mag., and also carefully examined the specimens of *S. abiegana* in my cabinet, kindly given me by Mr. Richardson, and I am now convinced that Mr. Barrett is right. *S. pygmaæna* has not previously been recorded from Norfolk.—EDWARD A. ATMORE, 48, High Street, King's Lynn, Norfolk: *January 10th*, 1893.

*Re-occurrence of Halonota ravulana, H.-S., in Norfolk*.—Last year I had also the good fortune to take three beautiful specimens of this rare *Tortrix* on a heath near King's Lynn, in the same district I believe in which Mr. Barrett took one example a few years since. My first capture was a great surprise, and was taken thus. One afternoon early in June I was beating the branches of trees into an umbrella for *Coleoptera*, when, upon examining the heterogeneous assortment of insects, &c., which had fallen therein, I espied and boxed a swarthy looking little moth, which proved to be a fine ♂ *H. ravulana*. Two more examples (1 ♂ and 1 ♀) were taken a few days afterwards whilst flying in the sunshine about a mile from the site of the first capture.—ID.

*Antithesia carbonana near King's Lynn*.—Early in July last year I was surprised to find a beautiful specimen of this local species sitting upon the upper surface of a frond of the common brake (*Pteris aquilina*), a short distance from King's Lynn. Although this *Tortrix* has been stated to occur in Norfolk by Haworth, Curtis, Stephens and Wood, I can find no record of any recent capture in our County.—ID.

*Some interesting captures at light around King's Lynn*.—During 1891 and 1892 I devoted some time to examining and watching gas lamps, on suitable evenings, in and around the town. By this means a large number of *Lepidoptera* were taken, amongst them I may note the following:—*Senta ulvæ (maritima)* (2), *Acidalia rubricata* (1), *Eupithecia frasinata* (1), *Aspilates citraria* (a few highly coloured and well marked females), *Catoptria expallidana* (1), *Crambus falsellus* (1), *Exæretia Allisella* (2), and *Anesychia funerella* (1). All of these, with the exception of *A. citraria*, I had not previously met with in this district. The occurrence here of the last named insect (*A. funerella*) is curious, inasmuch as the food-plant of its larva (*Symphytum officinale*, Comfrey) does not, I believe, grow in the wild state. I have, however, seen the plant growing in gardens around the town, and this unexpected visitor to a light in the town may have come from thence.—ID.

*Notes on a probably new Gelechia, attached to Suæda fruticosa*.—For some years past I have now and again taken a *Gelechia* belonging to the *instabilella* or *obsoletella* group of the genus, but which, nevertheless, does not appear to be referable to

any of our described species. In 1882 specimens were named for me *G. instabilella*, but several to whom I have since shown the insect have considered it to be a good and distinct species. I am told that Mr. W. H. Harwood has also been acquainted with this particular insect for many years. So far as my own observations are concerned I may say, that I have found this *Gelechia*, which is fairly constant in coloration and markings, to be invariably attached to the hardy perennial shrub, *Suada fruticosa*, growing upon or near the sea coast. I now learn that Mr. W. H. Harwood has actually bred specimens from that plant, and have little doubt that this insect will soon figure in our lists as a distinct species.—ID.

*Gelechia tetragonella* in the Isle of Purbeck.—On June 26th of last year I heard from the Rev. Charles R. Digby, of Studland, that he had just come across, in a saltmarsh near Poole Harbour, a *Gelechia* that was unknown to him, and that he was anxious that I should make its acquaintance as soon as possible. Accordingly I went over on the 28th to stay with him for a night or two for that purpose, and the moment he showed me his six specimens on the setting boards I recognised them as *G. tetragonella*, a species that I had never, even in my wildest dreams, expected to come across in this part of the country, as it had only been taken in two localities, namely, at Redcar by the late Mr. John Sang (Ent. Mo. Mag., xxii, p. 99), and near King's Lynn by Mr. Edward A. Atmore (Ent. Mo. Mag., xxii, p. 162), both of which are on the east coast. We were extremely lucky in having absolutely perfect weather for both the expeditions made in search of it (and the more so, as I am sure that the insect would never "show up" unless the weather was exactly to its taste!), and we each got about enough good specimens for a cabinet series. The moths suddenly appear on the wing at about 6.30 p.m., flying over and among the beds of rushes, &c., and may be taken for about the next hour or rather less, but cannot be roused up from their hiding places at any other time. Mr. Sang's remarks about the shape of the moth when at rest, and the very peculiar greasy appearance of the hind-margin, owing to the dark grey stripe along it contrasting so strongly with the colour of the rest of the wing, are excellent. We could get no clue to the food-plant, but although Mr. Digby has, to my great regret, left the neighbourhood, and the spot is a most difficult one to reach from anywhere, I still hope to manage a search for the larva next season. As Mr. Atmore truly says, it is certainly not attached to *Artemisia maritima*, as that plant is altogether absent from this district.—EUSTACE R. BANKES, The Rectory, Corfe Castle, Dorset: January 10th, 1893.

*Coleophora deauratella* and *C. Fabriciella* two years in the pupa state.—It is interesting to be able to add these species to the list of *Coleophora* that are known to occasionally remain over as pupæ until the second year. On July 15th, 1892, a specimen of the former emerged from among some cases on flower and seed heads of pink clover (*Trifolium pratense*) that had been received from a friend in August, 1890, and then contained nearly full fed larvæ; while two days later an example of *C. Fabriciella* appeared from a batch of cases on heads of white clover (*T. repens*) received from another friend at about the same time. I only bred a single individual of each on this occasion, as the rest of the moths had come out in 1891; but there can be no doubt that they must have remained over as pupæ, for no fresh food was added in 1891, and the only attention they received was that the flower pots con-

taining them were again put out of doors during the second winter on the chance of some of them having seen fit to wait over till "a more convenient season."—ID.

*Coleophora deauratella* in the Isle of Purbeck.—After breeding, on July 15th last, the specimen referred to in the preceding note, I was naturally more than ever anxious to meet with *C. deauratella* in this district, although my efforts so far had always been in vain. On the following day, however, when working along the coast, I noticed a nice patch of purple clover (*Trifolium pratense*) in bloom, and immediately paid special attention to it, with the satisfactory result of at once finding my brilliant little friend already out and waiting for me there! By devoting a good deal of time to it then, as well as on other occasions, I enriched my collection by a short series, taken principally by sweeping, but it is very difficult to get the moths in good condition. Although *deauratella* has been already recorded from the county, it is a most welcome addition to our local list.—ID.

*Micropteryx Kaltbachii* in the Isle of Purbeck.—On April 22nd last, being in want of some fresh air, and having only a spare half-hour, I visited a neighbouring copse between 4 and 5 p.m. in the faint hope of meeting with this recently-described *Micropteryx* on hazel (Ent. Mo. Mag., 2nd Series, i, p. 31). My total bag was only four moths, but, as good luck would have it, the *very first moth* that I beat out and netted proved to be a nice specimen of the insect which was the special object of my visit! On two or three subsequent days I spent some hours working for it in the brilliant sunshine, but only secured half-a-dozen all told: it seemed to occur only where the copse wood was quite high, which made it difficult to work for, as one could only sweep or beat along the edges of the narrow rides. I was unable to have a good search for the larvæ at the right time, but at odd moments I found three or four about full-fed, and noticed a few hazel leaves that had been lately tenanted by them. This is the first recorded occurrence of *M. Kaltbachii* in the county of Dorset.—ID.

*Note on the genus Storthephora, Mäklin.*—The genus *Storthephora* was proposed by Mäklin in 1870 (Act. Soc. Fenn., x, p. 658), for two species from Tropical South America, and referred by him to the *Lagriidæ*. He appears to have been unaware that the same genus had long before been figured and described, under the name *Paratenetus*, by Spinola (Essai Monogr. sur les Clérîtes, ii, p. 116 [1844]), who placed it in the *Cleridæ*. Erichson, Motschulsky, and Leconte and Horn refer *Paratenetus* to the group *Heterotarsides* of the *Tenebrionidæ*; it was omitted altogether by Lacordaire. The genus is confined to the New World, and ranges from the United States to Brazil. The larger species somewhat resemble *Lypros* of the *Heterotarsides*; the smaller ones have much the facies of certain species of *Corticaria* or *Cryptophagus*. They agree in having a 3-jointed club to the antennæ, the club in some species being very much larger in the male than in the female; denticulate or crenate lateral margins to the thorax, in some species with a very long tooth at the anterior angle; the upper surface coarsely, irregularly punctured, and hairy; the anterior tibiae in the male usually, but not always, armed with a short tooth on the lower side about the middle.

Numerous species of *Paratenetus* from Central America have been described by myself (Biol. Centr.-Am., Col., iv, 1, pp. 238—243, 544—547).—G. C. CHAMPION, Horsell, Woking: December 12th, 1892.

*Coleoptera at Loch Awe, N.B., June, 1892.*—I find there are two slips in my list published last August (*ante* vol. iii, p. 216). I inserted by mistake *E. æthiops* for *E. acridulus*, and *A. alpinus* for *A. testaceus*, thus making it appear I had taken two rare insects instead of two common ones. I may add, as of some interest from that locality, though most are common insects:—*Coccinella* 18-guttata, *Cytillus varius*, *Phyllopertha horticola*, including black variety, *Helodes marginata*, *Cyphon padi*, *Leipopus nebulosus*, *Donacia sericea* and *discolor*, *Dorytomus pectoralis*, and *Homalium rufipes*.—ARTHUR J. CHITTY, 33, Queen's Gate Gardens, S.W.: 28th December, 1892.

*Mezium affine*.—I have recently come across this insect in a granary in London, though only sparingly. Many of the specimens were dead or broken, but in two (from their colour they seem slightly immature) the elytra are covered all over with hairs or bristles, which are closer and longer in the neighbourhood of the scutellum. The existence of these bristles appears to have escaped the attention of our English writers on *Coleoptera*, probably because the bristles wear off very easily, and though occasionally traces of them may be found by close examination, even after they are broken, they seem eventually to disappear without leaving any visible scar or sign of their former existence. The descriptions contained in Stephens' *Illustrations and Manual*, Cox's *Handbook of Coleoptera*, and Canon Fowler's *Coleoptera*, are evidently from the usual worn specimens; Mr. Gorham has, however, kindly referred me to some of the continental authorities, and to them the existence of the hairs or bristles seems known; thus Mulsant, in his *Gibbicollés*, p. 393, on *M. affine*, says—"Elytres gibbeuses avec un bourrelet tomenteux à leur extrême base d'un brun ou d'un roux de poix, lisses et parsemées de soies pales squamiformes et redressées;" and Reiche has described a species from Algeria as *hirtipenne*, which is probably only the same insect in a fresh condition. Mr. Gorham has called my attention to the fact, mentioned by Mulsant in his description above set out, that there is a narrow band of scales at the base of the elytra. I had taken this for the constricted base of the thorax, and I believe that it has generally been treated as such by English writers and Coleopterists. *Mezium affine* must, I think, be fairly common in the City and neighbourhood, in old warehouses, granaries and cellars. In addition to the specimens above mentioned, I have recently seen it and *Gibbium scotias* in fairly large numbers from the cellar of an old public house in the City. Unfortunately the cellar has now been cleared of the old rubbish in which the beetles lived and thrived.—ID.

*Anthaxia nitidula in the New Forest.*—Quite recently I have had for examination a very fine specimen of this beautiful beetle, which was taken in July, 1891, by my friend, Dr. Burman, of Wash-on-Dearne. It was swept from the herbage which bounds the road from Brockenhurst to Lyndhurst in the New Forest.—E. G. BAYFORD, 158, Doncaster Road, Barnsley: December 21st, 1892.

*Monohammus sartor, F.*—In the collection of Mr. A. Paterson, of Doncaster, is a fine ♂ of this species. It is in very good condition, an antenna which had been broken off having been replaced in an almost faultless manner. Mr. Paterson informed me that it was taken by the joiners at the Great Northern Railway plant while sawing up timber; some time about 1885, he thinks.—ID.

## Review.

THE BUTTERFLIES OF NORTH AMERICA: by W. H. EDWARDS. Third Series, Part XIII, with three Coloured Plates. Boston and New York: Houghton, Mifflin and Co.; London: Trübner and Co. 1892.

This part is devoted exclusively to the singular and interesting genus *Chionobas*. The first plate is occupied by *Ch. Chryxus*, var. *Calais*, Scudd., the unique type specimen of which is represented, together with others approaching thereto. The second plate is crowded with about thirty figures, detailing the complete life-history of *Ch. Jutta*, Hb., with very copious text. This species is found both in Europe and North America, and in habits departs from those of the majority of the genus, and is found in low swampy districts. The third plate contains figures of the perfect insects of *Ch. crambis*, Fr., and *Ch. Brucei*, Edw., and of this latter the life-history is given and delineated. Everything is drawn up with the greatest care, and the plates need no commendation from us; they speak for themselves.

## Obituary.

Professor John Obadiah Westwood, M.A., F.L.S., &c.—Full of years and honours this veteran entomologist passed away on the 2nd January. He had been in feeble health for some time, and we believe he died simply from decay of nature. He was born at Sheffield on December 22nd, 1805, and so had recently completed his 87th year. His father was a die sinker at Sheffield, and his early education was at a Friends' School in that town, so presumably he came of a Quaker family; be that as it may, he was himself a staunch Churchman. His family removed to Lichfield, and thence he went to London to be articled to a solicitor. A fragment of an early autobiography is to be found in the "Entomologist" of 1842, where he says:—"It was in the autumn of 1821 that I came up to London to be articled to a profession. For the next six months, however, instead of studying Coke upon Lyttleton, I greedily devoured all the information to be obtained from Samouelle's Compendium, Haworth's Lepidoptera Britannica, Shaw's Zoology, and other similar works." He was, however, admitted as a solicitor, and for a short time was a partner in a firm. He never really practiced, but devoted himself to Entomology and Archæology, and having some private means, augmented his income by writing and drawing, for it was probably by his rare artistic talent that he acquired much of his justly great reputation. His drawings of insects were masterpieces of accuracy without the slightest attempt at effect, rapidly executed, and, what some termed rough, others preferred to style "Westwoodian;" few have equalled him in correct delineation. There certainly never has been an entomologist who left behind him so much evidence, in practical work, of his ability to delineate insects, even to the most minute dissections. But Westwood was much more than an artist in Entomology. There probably never has existed, and in the present state of the science, there can never again exist, one who had so much general knowledge, both from personal investigation and a study of the works of others; one who was less of a specialist in the modern acceptance of the term. It is true he was a specialist, but it was in the way of taking up small groups in all Orders, and working them out thoroughly, his artistic talent giving merit and force to those small monographs.

Under a somewhat brusque manner was concealed a hearty sympathy for all real workers, and if he offended, it was commonly in the way of pointing out to would-be introducers, &c., of supposed novelties that some one or other had already made similar observations, his vast memory rendering him very dangerous in this respect. He had his eccentricities, one of which was his parsimony in the matter of stationery : one seldom received a letter from him that was not enclosed in an envelope that had already been used, and his papers, memoirs, and drawings were usually written and made on the blank side of prospectuses, circulars, &c., and so on—"waste not, want not," was his motto. In society there could be no more genial companion, full of anecdote, but with small appreciation of humour. At home there could be no more generous host.

Having detailed a few of the personal characteristics of Prof. Westwood, it is necessary to say more of his work ; to say anything adequate would require a No. of this Magazine. His early papers appeared in the Natural History Journals of the period (English and French). In 1833 the Entomological Society of London was founded, and Westwood identified himself with it from the commencement. He was elected Secretary in 1834 (Mr. G. R. Gray was the first Secretary), and continued such for several years ; by his vigour he successfully combatted an opposition that threatened to crush the infant Society (see "Postscript" to Introduction to Vol. i of the Transactions). The Rev. F. W. Hope, a wealthy amateur, was then President, and became Westwood's warm patron. His interest in the welfare of the Society never flagged : he was President on three periods of two years each, and on the occasion of the Jubilee of the Society in 1883 was appointed Honorary Life President. But his papers were scattered through innumerable publications ; there never was so prolific a writer, there is scarcely a Family of insects in any Order on which he did not treat, even to the most minute, for he was an adept at microscopic work almost to the last. As to the accuracy of his work there can be no question, and few men have made less mistakes. There was, however, a somewhat ludicrous incident in this respect. Many years ago he exhibited at the Entomological Society what he pronounced to be a gigantic flea, found dead in a bed at Gateshead, and described it as *Pulex imperator*, but which afterwards he discovered was only the young larva of a cockroach, crushed laterally. Such a mistake might have crushed a more sensitive and less famous man ; as it was the name he imposed on the supposed flea clung to him for years. His separate works were many. Even if he had written nothing else, his "Introduction to the Modern Classification of Insects" is sufficient to stamp him as the foremost entomologist of this or any other age ; a monument of original observation and careful compilation. This work gained him the Royal Medal of the Royal Society in 1855, but he persistently then, and on subsequent occasions, refused to be nominated for election as F.R.S., though his success was certain. Perhaps he considered the views of the Society as already too advanced, and soon afterwards the teachings of Darwin and others revolutionized natural science, and no doubt caused him genuine pain, for he never identified himself with Natural Selection or Evolution, and indeed, it is probable he never fully understood the bearing of the new school of philosophical thought. He was elected into the Linnean Society in 1827, and was on the Honorary List of nearly every Entomological and kindred Society of his period. He was on the staff of the "*Gardener's Chronicle*" as entomological referee for nearly half a century.

We have alluded to his connection with the Rev. F. W. Hope. This had a vast influence on his career. In 1858 Hope presented his collections to the University of Oxford, combined with that of Westwood himself, which he purchased, and endowed a Professorship, which Hope intended should be of Entomology, but a difficulty was thrown in the way, and a compromise was effected by instituting a Chair of Invertebrate Zoology. Westwood was the first Hope Professor. Hitherto he had resided at Hammersmith, but henceforth he lived at Oxford. He was made Honorary M.A., and Honorary Fellow of Magdalen College. He soon became a striking feature in the University, and under his charge the entomological collection increased vastly, though it is still only partially arranged.

We might stop here. But there was another side to Westwood's pursuits, that of Archaeology, to which we briefly alluded at the commencement. In fact, those who have already written Obituary notices of him seem to have regarded him chiefly from this second standpoint. In this field he excelled in reproducing old MSS., illuminations, representations of old ivories and inscribed stones, &c., and his works on these subjects are stupendous and costly. That he lived long is true, but one cannot but marvel, nevertheless, at the quantity of work he got through, simply by plodding industry; and he left no stone unturned, undertaking long and arduous journeys, even to St. Petersburg, in order to study some rare insect, or copy some rare MS. We are indebted to the courtesy of Dr. Masters, F.R.S., Editor of the "Gardener's Chronicle," for the opportunity of giving a portrait of Prof. Westwood, taken some years ago, but very characteristic.—R. McLACHLAN.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *December 12th, 1892.*—Mr. R. C. BRADLEY, Vice-President, in the Chair.

The following were exhibited :—by Mr. G. W. Wynn, *Acronycta alni* bred from a larva found at Knowle; also *Lithosia complana* taken at Bewdley. Mr. C. J. Wainwright, *Isopogon brevisrostris* and *Neotamus cyanurus* from Barmouth, and *Machionus atricapillus* from Brendon, Devonshire. Mr. R. C. Bradley, *Chrysoclysta bimaculella* and *Linnella*, and *Stigmonota nitidana* and *regiana*, all from Sutton. A paper upon "Secondary Sexual Characters in Insects," was communicated by Mr. J. W. Tutt, and read by the Secretary.

*January 16th, 1893.*—Mr. W. G. BLATCH, President, in the Chair.

A Lecture was delivered by Col. Chas. Swinhoe upon "Protective Resemblance and Mimicry in Insects." In the course of the lecture, which was illustrated by photographic lantern slides, some of which were beautifully coloured, he gave a number of cases and facts of mimicry which were quite new and very interesting.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—The Annual Meeting was held on Monday, January 9th, 1893, in the class-room of the Free Public Library, William Brown Street, Liverpool. Mr. S. J. CAPPER, F.L.S., F.E.S., President, occupied the Chair, and there was a good attendance. A number of interesting

exhibits were laid on the table for inspection. The first business was the election of officers for the ensuing year.

Mr. Capper was, for the 17th time, re-elected to the position of President; Mr. W. E. Sharp was appointed Vice-President; Mr. F. N. Pierce, F.E.S., Honorary Secretary and Treasurer; and Mr. C. H. H. Walker, Librarian.

Mr. Walker, on behalf of the Members of the Society, said it was his pleasing duty to ask Mr. Capper to accept a handsome gold-mounted silver case, containing a pair of gold entomological forceps. The Society congratulated itself upon having again secured Mr. Capper as its President.

Mr. Capper, in acknowledging the gift, said that he thoroughly appreciated the kindness of the Members, and would in future, as in the past, do all he could to benefit the Society. Before proceeding to deliver his Presidential Address, he referred to the death of Prof. Westwood.

The President exhibited a melanic variety of *Timandra amataria*, the specimen was unicolorous, covered with soft olive-green scales. Mr. Gregson, a collection of autographs of Naturalists, Artists, and Authors, including nearly all the Entomologists of the last fifty years. Mr. Walker, a drawer of varieties of North American *Vanessa Antiopa*, probably the finest lot of varieties of this species extant. Mr. Collins, *Stawropus fagi* from Reading. Mr. Mosley, set of Educational cases of Natural History, to be used as prizes at schools. Mr. Newstead, a specimen of *Vanessa Antiopa* captured in Cheshire, in 1877, by Mr. Leather, of Vale Royal.—F. N. PIERCE, *Hon. Sec.*, 143, Smithdown Lane, Liverpool.

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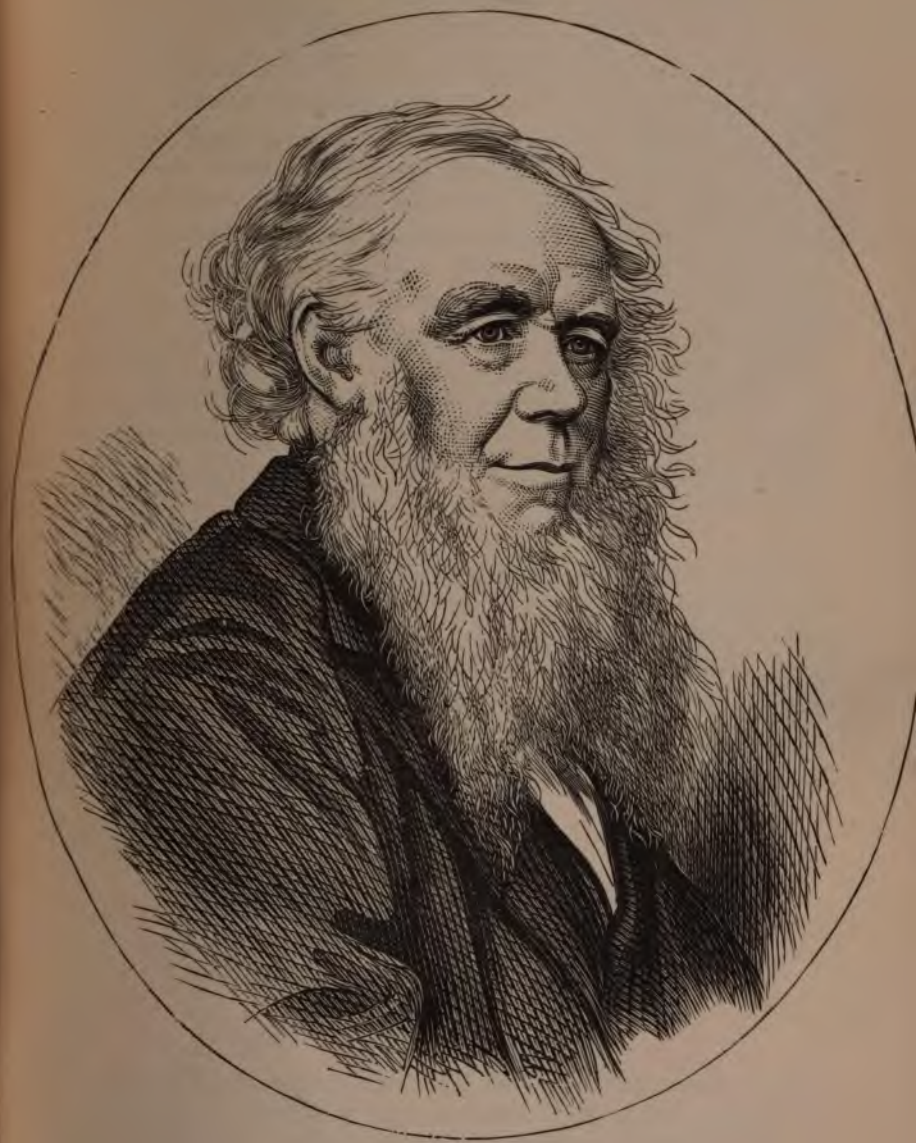
ENTOMOLOGICAL SOCIETY OF LONDON: *January 18th*, 1893.—SIXTIETH ANNUAL MEETING.—FREDERICK DUCANE GODMAN, Esq., F.R.S., President, in the Chair. An Abstract of the Treasurer's Accounts having been read by one of the Auditors, the Secretary, Mr. H. Goss, read the Report of the Council. After the ballot it was announced that the following gentlemen had been elected as Officers and Council for 1893:—President, Mr. Henry J. Elwes, F.L.S.; Treasurer, Mr. Robert McLachlan, F.R.S.; Secretaries, Mr. Herbert Goss, F.L.S., and the Rev. Canon Fowler, M.A., F.L.S.; Librarian, Mr. George C. Champion, F.Z.S.; and as other Members of the Council, Mr. C. G. Barrett, Mr. Charles J. Gahan, M.A., Mr. F. DuCane Godman, F.R.S., Mr. Frederic Merrifield, Mr. Osbert Salvin, M.A., F.R.S., Dr. David Sharp, M.A., F.R.S., Colonel Charles Swinhoe, M.A., F.L.S., and Mr. George H. Verrall. The President then delivered an Address, which, though containing reference to the Society's internal affairs, and an allusion to the successful resistance made by naturalists and others to the War Office scheme for establishing a rifle range in the New Forest, consisted for the most part of full obituary notices of Fellows of the Society who had died during the year, special mention being made of Mr. Henry W. Bates, F.R.S., Professor Hermann C. C. Burmeister, M.D., Dr. Carl A. Dohrn, Mr. H. Berkeley-James, Mr. J. T. Harris, Sir Richard Owen, K.C.B., F.R.S., Mr. Henry T. Stainton, F.R.S., Mr. Howard Vaughan, and Professor J. O. Westwood, M.A., the Hon. Life President. A vote of thanks to the outgoing President having been proposed by Lord Walsingham, F.R.S., and seconded by Mr. J. H. Leech, Mr. Godman replied. Dr. D. Sharp proposed a vote of thanks to the Secretaries, Treasurer, and Librarian, which was seconded by Mr. W. H. B. Fletcher; Mr. McLachlan, Mr. Goss, and Canon Fowler replied.—H. GOSS and W. F. FOWLER, *Hon. Secs.*





Yours very sincerely  
H. F. Stainton





PROFESSOR WESTWOOD.

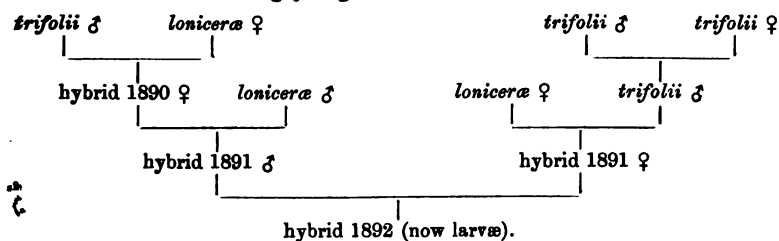


NOTES ON SOME EXPERIMENTS IN HYBRIDISING BURNET MOTHS  
(*ZYGÆNÆ*).

BY W. H. B. FLETCHER, M.A., F.E.S.

On page 115 of Vol. xxvii of this Magazine is a record of my having shown at a Meeting of the Entomological Society some hybrids between *Zygæna lonicera* and *filipendula* reared in 1889 and 1890. These were intermediate in markings between the parents. Some of the males show only a slight trace of the sixth spot when examined with a strong lens, while some of the females have it as well developed as it is in typical *Z. filipendula*. They are the largest Burnets I have bred, one of them having an alar expanse of 40 mm. Not having learnt the best way of keeping the larvæ during the winter, I only bred about a dozen moths in each year, so was not plucky enough to waste many in attempts to carry on the broods for another year. Two pairings, however, were obtained, but none of the eggs laid hatched. Still, judging by experience with other crossed and uncrossed eggs, I do not feel justified as yet in assuming that the cross between these two species is *always* sterile.

More recently I have experimented with *Z. lonicera* and *trifolii*, and in 1891 and 1892 succeeded in rearing a fair number of both the crosses obtainable between them: *lonicera* ♂—*trifolii* ♀ and *trifolii* ♂—*lonicera* ♀. Unlike those mentioned above these hybrids laid fertile eggs, and I had, in 1892, the satisfaction of getting specimens of the following crosses: hybrid ♂—*trifolii* ♀, *lonicera* ♂—hybrid ♀ and hybrid ♂—hybrid ♀. At the present time I have hibernating larvæ with the following pedigree:—



These results seem to prove that the fertility of crosses between *Z. lonicera* and *trifolii* is fairly complete. These two species also pair readily, thus contrasting with the unions of *Z. filipendula* and *lonicera*, of which I could obtain but one or two pairings out of several dozens of moths set aside for that purpose, while the single couplings obtained between *Z. filipendula* and *trifolii*, and between the former and *lonicera-trifolii* hybrids, failed to produce fertile eggs.

Among the last-named hybrids there is a strong tendency to re-

semble the mother, although when several of a brood are seen together the influence of both parents is very marked. Thus, out of several hundreds of specimens of *Z. lonicera* from Kent, Notts. and York, bred during the last four or five years, not one has had the central pair of spots joined, while among every brood of mongrels some have had them united, and, when *Z. trifolii* has been the female parent, several have had all the spots run together as in var. *confluens* of *trifolii*. A more extreme form too occurs in which the red scales are spread beyond their usual limits, so as to over-run most of the fore-wing, except the hind margin and a narrow stripe next to the inner margin. The influence of *Z. lonicera* is shown by the greater opaqueness of the fore-wings, the acuteness of the hind-wings, and by the shape of the antennæ.

I have made many attempts to cross *Z. meliloti* (using moths bred from larvæ sent me by Mr. Edmonds, and wild males from the New Forest) with *filipendulæ*, *lonicera*, *trifolii*, and the hybrids between the last two, with the result of obtaining two pairings between *Z. meliloti* and *filipendulæ*, and one between the former and a hybrid male. In all cases the eggs failed to hatch. I have so far failed to obtain a pairing of *Z. meliloti* and *trifolii*. This circumstance, together with the great distinctness of the larvæ, leaves no doubt on my mind that *Z. meliloti* is a good and distinct species. This view is strongly confirmed in an interesting note by Mr. F. N. Pierce (British Naturalist, 1892, p. 80), in which he states that the form of the anal organs in *meliloti* would effectually prevent crossing between it and its above named congeners.

Still, some entomologists may think that one cause of my utter failure to obtain hybrids with New Forest *meliloti* may be due to their having previously paired, so I may as well at once meet the objection by saying that male Burnets, like many other *Lepidoptera*, will pair with three or four females and effectually fertilize their eggs. Besides, as before mentioned, I had the advantage also of being able to use bred specimens of both sexes.

Another question that will arise is, whether hybrid Burnets occur in a state of nature? On this point I can throw no definite light. On one occasion, however, I answered an advertisement offering pupæ of *Z. trifolii*. When the moths emerged they proved to be a mixture of *Z. filipendulæ* and *lonicera*. I did not examine them carefully during the summer, but when doing so in the winter, found among them three or four with a very "mixed" aspect. This batch was stated to have come from the coast of Kent.

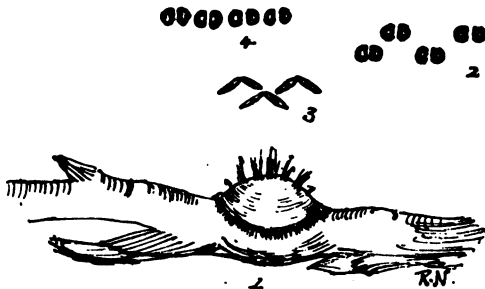
Worthing: February 4th, 1893.

## NOTES ON SOME BRITISH AND EXOTIC COCCIDÆ (No. 25).

BY J. W. DOUGLAS, F.E.S.

POLLINIA THESII, *n. sp.*

♀ adult (Fig. 1). Scale pale yellow or dingy brown, smooth, slightly shining, very hard and convex, subovate, broadest in front, posteriorly more or less produced,



the prolongation flattened and narrowed to an obtuse or bifid end (this is more evident on the insect beneath); anal aperture situate at the margin small, round, emitting a tuft of delicate glassy filaments; surface shows traces of many effete double and a few single spin-

nerets; dorsum with a median longitudinal, mane-like row of upright or curled, delicate, flossy, white filaments of unequal height, disposed in 5—6 adjacent tufts, and arising out of the integument; margin with a projecting horizontal fringe of fine, distinct, glassy, hair-like filaments disposed in two series, those of the upper one not so close together as the lower. Antennæ rudimentary, apex rounded, bearing one long hair and four or five short ones. Mentum apparently biarticulate,\* with two hairs at the apex; rostral filaments expanded, very long, nearly one-third the length of the body. Legs wanting. Marginal spinnerets double, somewhat like the muzzle of a double-barrel gun, disposed in two rows at front and sides, but placed alternately as to the respective rows (Fig. 2), profile (Fig. 3), posteriorly merging into one nearly straight row (Fig. 4). Anal ring recessed within a larger one, bearing six hairs; lobes wanting, in their place are two rather long, stiff hairs, and between them about twelve shorter, of various lengths. Dorsum with numerous long tubular spinnerets, and a few scattered circular orifices.

The under-side of the scale is closed by a thin pellicle. The sides of the scale are approximated in order that they may grasp the thin stem of the food-plant, to which they closely adhere. The closure of the scale causes the insect to be quite enveloped; after death it becomes shrivelled, but can be restored to its original form by boiling in caustic potash. There were no eggs or larvæ in the scales, but a brown one contained the larva of a parasite that quite filled the space. Length, 2 mm.

In the "Bulletino della Società Entomologica Italiana," i, 263, Targioni-Tozzetti founded his genus "*Pollinia*" on the *Coccus Pollini* of Costa, which lives on the olive, deriving the generic name from the specific, which he altered to "*Costæ*"—a mode of procedure that cannot be commended. He gives the following diagnosis of the genus:—

\* The dimerous character of the mentum, though evident, cannot be figured, for unfortunately in each of the two preparations the mentum is tilted on its apex with the base towards the covering glass, and it cannot be shifted.

"Fœm. In fovea verruciformi crustacea arcte inclusa, paramorphosi inflata, apice incisa, squamisque caudalibus minimis prædita, acera, apoda.

"Labio postico articulado dimero; Chorio fuis geminatis tubularibus sparso."

The female is thus described, and it and the larva are also figured:—

"Fœm. In fovea crustacea crassiuscula, similibus congregata, ramisque simul adherentibus, arcte clausa, globularis elliptica, crocea, lævi, nitens, postice bidentata.

"Os, rostro rhomboideo, labio cordiformi elongato dimero; squamis analibus triangularibus obtusis adpressis, apice spinulosis, minimis.

"Chorio densiusculo, nitido, fuis geminatis, crebris, subregulariter disseminatis.

"Mas adhuc ignotus."

Of the spinnerets on the body of the *adult* insect nothing is said, but of those on the *larva* it is stated:—

"Delle grandi filiere, delle quali sembra doppio il lume, vedendosi l'orificio superficiale e profondo quasi in uno stesso piano, formano due serie parallele all'asse del corpo di sopra, e per ogni lato."

Yet on the figure of the upper-side of the larva, besides the two dorsal rows of double spinnerets, only one row of them appears on each side.

Signoret, adopting the genus and describing the same species (Ess. Cochen., p. 162), says that "the *larva* in its lecanoid form has neither feet nor antennæ, only vestiges of the latter as a triangular tubercle with some hairs, fig. 1*d*." But at p. 472 he says that "fig. 1*d*" represents the atrophied antenna of the *adult*; the term "*larva*," therefore, is an error, in view of the fact that in his description and figure of the larva it is represented as having both the antennæ and the legs.

The character of double and single spinnerets on the integument is given the same as by Targ.-Tozzetti, and it is added that "the embryonic female has four series of tubes, each with a double opening—two on the median part and two on the lateral margins." Interpreted by the fig. "1*d*" this means two rows on the dorsum and one on each lateral margin, making up the number four. The spinnerets on the lateral margins of the body of the adult are not mentioned, but they have been understood to be as in the larva, and to give rise to only one row of fringe, for Maskell, in his "Account of the Insects of New Zealand," p. 87, says of the genus *Pollinia*, "Test hard, waxy, with a single fringe." Signoret also says of the adult female form that "the anal extremity has a very small opening with two very small lobes scarcely visible; the anal ring with eight hairs;" also that the mentum is biarticulate, and otherwise his description agrees with that of T. Tozzetti.



The present species is therefore not strictly conformable to the genus *Pollinia* of T. Tozzetti, nor yet clearly to that genus as defined by Signoret. In the double row of lateral spinnerets and fringe it is like *Planchonia*, but that genus has the mentum monomerous and no antennæ.

Though not satisfactory I place it, for the present, as a *Pollinia*. The dorsal row of free filaments is the most appreciable character, there are also the form of the rudiments of the antennæ (rounded, not triangular), the six instead of eight hairs on the anal ring, as well as the more ovate shape of the scale, and the nature of the habitat, to substantiate the distinctness of the species from *P. Costæ*. Of that species neither author mentions any marginal fringe, though, indeed, in the characters of the Family *Lecanodiaspidæ*, in which it is placed, Signoret gives a prominent position to the marginal fringe (p. 161).

On July 12th last Mr. Eustace R. Bankes, of Corfe Castle, sent me ten of these insects, with the following information:—

“While spending the day yesterday in the Isle of Purbeck, in searching for pupæ of *Chauliodes insecurellus* on the scarce, local and little known plant, *Thesium humifusum* (a parasite on other plants), I found the scale-insects I now send. They were in every case attached to the under-side of the twigs, sometimes in a little cluster, generally near the base of the plant, and not easily seen if the plant is examined from the under-side.”

I am greatly indebted to Mr. R. Newstead for the pains he has taken to work out and figure the details of structure.

153, Lewisham Road, S.E.:

September, 1892.

## ENTOMOLOGICAL NOTES FROM THE EASTERN ARCHIPELAGO.

BY J. J. WALKER, B.N., F.L.S.

(Concluded from page 31).

Ternaté was left at daybreak on the 25th, and, as before, we enjoyed fine and calm but very hot weather on the passage to our next port of call, Samboangan, near the southern extremity of Mindanao, the second island in point of size of the Philippines. On the way we had excellent views of the lofty and picturesque islands of Sangueir and Sian, the latter having a fine volcanic peak nearly 6000 feet in height, emitting dense volumes of smoke at short intervals. We arrived at Samboangan on the morning of the 29th, and spent this and the two following days very pleasantly. This Spanish

town contrasts very unfavourably in its general aspect with the perfect Dutch neatness and cleanliness of Amboyna and Ternat , where not even a dead leaf is allowed to encumber the streets; here they are full of mud puddles and accumulations of dirt of various kinds, and swarm with dogs, fowls, and gaunt pigs, while evil smells are encountered at every turn. Nearly all the native houses, which are built neatly enough of palm leaf and bamboo, are perched up on posts about six feet above the ground, the space beneath being used for various kinds of lumber. All round the town are extensive paddy (rice) fields, at this time just coming into ear, and presenting a beautifully verdant appearance; a wide fringe of coco-nut plantations extends along the shore line, while banana groves, clumps of fruit trees, and occasional waste patches, afford a sufficient variety of collecting ground. There is some difficulty, however, in getting about, a great deal of the ground being enclosed with close bamboo fences, and the town straggles over a very large extent; while those ugly and vicious, though useful brutes, the water-buffaloes, are very numerous, every mud-hole and little pond being occupied by one or more, and it is as well always to give them as wide a berth as is convenient. The natives are a very civil and well-disposed people, whose chief occupation in life appears to be cock fighting.

About four miles from the town, or rather from the landing place, the country rises gradually into a range of very steep and rugged hills sufficiently well clothed with forest, and a fine and very rapid stream, which flows through the middle of the town, affords a convenient means of access to them by following up its rocky bed, after leaving the road at the foot of the hills. I spent the day here (on November 30th) with very fair success, the most conspicuous feature in the insect life of this locality being the abundance of two species of *Pierid * (*Appias*), one white, the other a beautiful reddish-orange butterfly allied to the widely distributed *A. Nero*; these were congregated by hundreds on damp sandy spots on the margin of the stream, along with numerous small "blues" (but very few other butterflies), looking at a little distance like beds of crocuses, and when disturbed, rising in the air in a perfect cloud. All books of tropical travel speak of these assemblages of butterflies, but it was the first time in my experience of collecting that I had witnessed this pretty sight to perfection. In shady places a magnificent *Papilio* (which I think may be *P. Emathion*), most gorgeously marked on the under-surface with bright crimson on a ground of deep black, was often seen, but rarely in good order, and by no means easy to catch, while a black and white

species of the "*Pammon*" group was more plentiful. One ♂, in beautiful fresh condition, of a fine yellow *Ornithoptera*, was the only specimen which I succeeded in taking out of several seen. The pretty bluish-green and black *Eronia Phoece* was common among thick undergrowth along with a species of *Pontia*; two or three species of *Terias* swarmed among *Leguminosæ*, notably a very striking and handsome form with broad black inner margins to the fore-wings, while a fine orange-tipped *Hebomoia* was more often seen than caught. Several fine species of *Danaïs* were common, but *D. Archippus* was not met with, although its food-plant (*Asclepias curassavica*) was common; *Euplœa*, *Diadema*, *Cynthia*, *Charaxes*, *Messaras*, *Mycalesis*, *Cethosia*, *Neptis*, *Precis*, *Parthenos*, and several other genera were observed, and representatives of nearly all of them were taken. A beautiful form of *Melanitis Leda* was abundant, chiefly about the edges of "paddy" fields, and in the banana groves close to the town a big *Amathusia* (I think *A. Phidippus*) was not uncommon flying out abruptly from among the hanging dead leaves, and by no means easy to obtain in good condition. *A. Discophora* and a very large brown *Hesperid* frequented similar situations, but both were somewhat rare. Of moths I saw but few, though some fine larvæ of *Attacus Atlas* were found on the leaves of the custard apple, *Anona muricata*.

As at Ternaté, I found *Coleoptera* tolerably numerous among dry dead leaves on felled trees, &c., and obtained some interesting little Longicorns, &c., by beating them into my net. A large pubescent species of *Hylotrupes* must be very abundant, as although I did not meet with it myself, I had on two or three occasions a score or more of living specimens evidently just caught offered for sale to me by native boys. Some pretty little *Heteromera* were found under bark and in stumps, a *Pæderus* on the banks of the stream, and a fine *Copris* in its usual habitat. On one occasion, while rambling about in a grove of fruit trees, I had a narrow escape from a great swarm of bees, which were densely clustered on a horizontal bough about eight feet from the ground, and I had passed right under them before I was aware of their presence, luckily without disturbing any. As it was I was glad enough to give them a wide berth without troubling to ascertain the precise species.

After leaving Samboangan we encountered the north-east monsoon rather strongly, our progress being in consequence not very rapid, and we did not reach our next port, Manila, until the afternoon of December 7th. We lay about a mile and a half from the town, the shores of the extensive Bay of Manila being very low, and apparently

swampy in many parts, only a few high forest-clad hills being visible in the background. The coco-nut palm, so conspicuous a feature in the scenery of all the places we had lately visited, was here entirely absent, its place being taken by the bamboo. From the extensive Lago de Bay, some 15 miles from Manila, the river Pasig, which divides the city into two somewhat unequal parts, brings down a great quantity of the so-called "water cabbage," *Pistia stratiotes*, a gigantic ally of our duckweeds. This plant is superficially very like a small lettuce or cabbage, and the whole surface of the harbour is strewn with it at certain states of the tide.

As the city of Manila contains nearly 300,000 inhabitants, and occupies a proportionately large area, I found it necessary to hire a two-wheeled carriage, or "cara mata" as it is called here, and to go out some four or five miles into the country before I could find any collecting ground at all worth working. Such a locality I found at the village of Santa Misa, close to the reservoir which supplies the city with drinking water, this being conveyed by means of a huge cast iron pipe to its destination. Along the course of this pipe, which is planted on either side with tall rows of bamboo, and in some rough waste ground near the reservoir, in the midst of interminable paddy fields and fruit gardens, I found a very tolerable variety of *Lepidoptera*. The fine yellow *Ornithoptera* found rarely at Samboangan was here tolerably common. It is a beautiful sight to see one of these grand insects, daintily poised (as it were on tiptoe) with vibrating wings and extended proboscis, on one of the bright red or yellow corymbs of that most attractive shrub, *Lantana camara*. While thus "on the feed" the *Ornithoptera* admits of a very close approach, and is easily captured. Two *Papilio*'s, of the "Pammon" and "Agamemnon" groups respectively, were occasionally seen, but not captured, and a beautiful species of this genus, sooty-black with rich crimson abdomen and spots of the same colour on the under-side of the tailed hind-wings, occurred not rarely in shady places. *Pieris*, *Pontia*, *Hebomoia*, *Eronia*, *Callidryas*, and *Terias* were represented, more or less copiously, but there was a marked absence of the usually abundant *Danais* and *Euplœa*, only one very ordinary looking species of the former genus being obtained. One much damaged specimen of a very handsome form of *Libythea* occurred at *Lantana* flowers, with *Diadema Misippus* and sp., *Atella Phalanta?*, *Junonia* (two species), a fine *Precis* allied to the Australian *P. Zelima*, *Neptis* sp. very like the European *N. aceris*, *Ypthima* sp. (abundant), &c., &c. The *Lycænidae* and *Hesperiidae* were represented only by a few small and comparatively obscure forms.

Of moths the most conspicuous was a very beautiful *Eusemia* with black wings largely spotted with deep ochre-yellow, and the body brilliantly varied with metallic bluish-green and crimson; this insect was locally not uncommon, flying in the hot sunshine like a Burnet moth. I saw very few *Coleoptera*, though I took one specimen of a beautiful weevil (*Pachyrhynchus* sp.), and the largest and finest representative of the *Coccinellidæ* which I have ever met with.

With our departure from Manila early on the morning of December 11th our too brief voyage among the beautiful and luxuriant islands of the Eastern Archipelago may be said to have come to an end; and after a week of nearly cloudy skies, rough seas, and strong north-east monsoon winds, we reached our final destination, Hong Kong; where we remain until the beginning of March, when we commence our third surveying season in Chinese waters.

H. M. S. "Penguin."  
January 3rd, 1892.

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## DESCRIPTIONS OF SOME *RHYNCHOTA* OF GEOGRAPHICAL INTEREST.

BY E. BERGROTH, M.D.

Of the genera mentioned below, *Niphe*, Stål, was hitherto only known from tropical Asia and Malasia, *Rhaphidosoma*, A. et S., only from the Ethiopian region. *Peromatus*, A. et S., is represented by a few species in eastern South America and Central America. Of *Zelus*, Fabr., numerous species occur in the same parts of America, whilst from western South America a single Peruvian species is known. It is a remarkable fact that the genus *Edessa* (from which *Peromatus* is scarcely distinct), although extremely abundant in Brazil and northern South America, is totally wanting in the western States south of Colombia. It must be remarked, however, that Chili has a very peculiar and highly specialized Rhynchotal fauna, and that very little is known of the Hemipterous fauna of Bolivia, Peru,\* and Ecuador.

### Fam. PENTATOMIDÆ.

#### 1. *NIPHE ÆTHIOPICA*, n. sp.

*Elongato-obovata, testacea, supra sat crebre fusco vel nigro-punctata, punctura intra latera pronoti valde condensata, linea levi impunctata postice latiore et fulvescente ab apice pronoti ad apicem scutelli pertracta, limbo angusto laterali pronoti et corii pallido, pectore macula parva nigra prope*

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\* Many insects of different Orders distributed in the last years by Messrs. Staudinger and Bang-Haus as being from Peru, are really from localities in northern Brazil (Itaituba, Thomar, Faro, &c.).

acetabula, ad marginem anticum mesosterni et ad marginem lateralem metasterni notato, sat parce fortiter subfusco-punctato, punctis in medio propleurarum minoribus nigris vittam formantibus, area evaporativa punctis minimis raris nigris conspersa, ventre remote fusco-punctulato, spiraculis nigris. Caput intra oculos area oblonga impunctata præditum, ante oculos levissime sinuatum, deinde angustatum, jugis apice paullo convergentibus sed tylo vix longioribus, summo margine laterali capitis fusco, rostro testaceo, articulo ultimo nigro (antennæ desunt). Pronotum lateribus obsolete subrotundatum, pone angulos laterales rotundatos haud eminulos non sinuatum. Hemelytra apicem abdominis paullo superantia, membrana pellucida, venis obscurioribus. Connexivum immaculatum. Femora remote et minute nigromaculata. Segmentum genitale maris apice profunde sinuatum.

Long., ♂, 12 mm., ♀, 13 mm.

Variat pronoto apicem versus infusato pectoreque cum ventre fusco-lurido.

Africa occidentalis: Assini et Gaboon. Coll. Montandon.

*N. elongatæ*, Dall., cujus specimen annamense vidi, simillima, sed differt pronoto pone angulos laterales haud sinuato limboque pallido laterali corii multo angustiore.

## 2. PEROMATUS BOLIVIANUS, n. sp.

Obovatus, olivaceo-virens, apice cornuum lateralium pronoti fusco, corio flavo, vena subcostali tota utrinque venaque interna intus et post medium extus fuscolimbatis, clavo fusco, margine externo flavo excepto, membrana fusco-ænea, antennis pedibusque rufoferrugineis. Caput lateribus levissime sinuatum, antennarum articulis secundo et tertio longitudine subæqualibus (art. ultimus deest). Pronotum fortiter sat dense, basin versus remotius punctatum, marginibus lateralibus anticis paullo pone medium late levissime sinuatis, totis retrorsum divergentibus, angulis lateralibus in cornua marginibus lateralibus posticis subæquilonga, apice rotundata, postice prope apicem sinuata extus eminentibus. Scutellum basin segmenti quinti connexivi superans, remote punctatum, frenis medium scutelli haud attingentibus. Pectus parce punctatum, cornubus sternalibus valde divaricatis, sulco orificiali in rugam longam tenuem continuato. Corium scutello paullo longius, remote fusco-punctulatum, apicem versus densius punctatum. Abdomen subtus remote punctatum, carina obtusa media lævi, angulis apicalibus segmenti sexti nonnihil spinoso-productis.

Long., ♀, 26.5 mm.

Bolivia. Coll. Fallou.

The antennæ are mutilated, but as the 2nd and 3rd joints are both very long, I have no doubt that this large species belongs to *Peromatus*.

## Fam. COREIDÆ.

### 3. PHTHIA CANTHARIDINA, n. sp.

Cyanea, capite, scutello, membrana (hac subtus nigricante), femoribus ventreque obscure smaragdineis, antennis violaceis, harum articulo ultimo, rostro (articulo basali excepto) articulisque duobus ultimis tarsorum nigris, mesosterno vitta media longitudinali rufofulva notato; dense punctata, ventre nitido, transversim substrigoso, impunctato. Caput cum antennis parcius

*pilosum, his apicem hemelytrorum fere attingentibus, articulo secundo primo paullo longiore, tertio secundo multo brevior, quarto secundo distinctissime longiore. Pronotum et scutellum breviter erecte fuscopilosa, illo marginibus lateralibus anticis inermi, angulis lateralibus acutiusculis, leviter prominulis. Hemelytra apicem abdominis longius superantia, corio brevissime erecte puberulo. Abdomen subtus parce pilosum, spiraculis segmentorum tertii et quarti et quinti a basi quam ab apice segmentorum longius distantibus, segmento genitali maris apice medio impresso, margine apicali dense piloso, medio sinuato. Pedes parcius pilosi.*

*Long., ♂, 14.3—15.6 mm., cum hemelytr., 17—18.5 mm.*

Bolivia. Coll. mea.

*Corpore superne pictura flava constanter destituto a ceteris speciebus divergens.*

#### Fam. REDUVIIDÆ.

##### 4. ZELUS FILICAUDA, n. sp.

*Fusco-nigricans, capite subtus, rostro, lobo postico pronoti, hemelytris ventrequae dilutioribus, strigula inter ocellos flava, apice scutelli, limbo laterali abdominis lineaque longitudinali media ventris albis. Caput pronoto paullo brevius, post oculos subsensim angustatum, articulo primo antennarum capite et pronoto unitis paullo longiore (ceteri articuli desunt). Pronotum lobo postico subtiliter ruguloso-punctulatum. Hemelytra apicem abdominis paullo superantia. Segmentum genitale maris magnum, prominens, margine apicali medio processu angusto, curvato, nigro armato.*

*Long., ♂, 12 mm.*

Ecuador; Loja. Coll. Fallou.

*Subgeneris Diplodi membrum. Z. erythrocephalo, Fabr., structura segmenti genitalis maris affinis, sed ceteris notis bene distinctus.*

##### 5. RHAPHIDOSOMA ATKINSONI, n. sp.

*Supra obscure fuscum, vittis duabus albo-ochraceis parallelis ab apice pronoti ad apicem abdominis extensis, his vittis ad basin segmentorum abdominalium interruptis, subtus albo-ochraceum. Caput prothorace et mesothorace unitis paullo longius, apice inermi, oculis fere in medio capitis sitis, rostro et antennis fuscis, articulo secundo illius primo fere octuplo longiore, articulo primo harum capiti cum prothorace et mesothorace subæquilongo, secundo primo plus quam duplo brevior, tertio secundo paullo longiore (art. quartus deest). Prothorax leviter convexus mesothorace paullo brevior, hoc metathorace paullo longiore. Abdomen supra convexum, segmento ultimo dorsali apice triangulariter producto. Pedes fusi, tibiis femoribus longioribus, femoribus posticis apicem abdominis fere attingentibus.*

*Long., ♂, 25 mm.*

India orientalis; Trevandrum.

It differs from the African species by having no spine at the apex of the head, but cannot be generically separated from *Rhaphidosoma*. It was communicated to me by the late E. T. Atkinson.

Tammerfors, Finland:

January, 1893.

*Colias Edusa* bred in February.—It may be of some slight interest to record that I bred *C. Edusa* on February 1st. On September 16th I obtained about sixty ova; the young larvæ duly emerged, but as the frosty nights came on they died off, although kept in a window facing the south and a fire occasionally in the room; three, however, struggled on and became pupæ, the first on November 26th, the other two later on, and ultimately the last two damped off.—G. C. BIGNELL, Stonehouse, Plymouth: February 2nd, 1893.

*Aporia cratagi* in East Kent.—With reference to recent discussions as to the supposed extermination of this fine butterfly in Great Britain, it may be of interest to record the capture of a specimen in East Kent on the 28th of last June. The exact locality was described to me by the captor, who showed me the insect; but I suppress this in the interests of the butterfly.—THEODORE WOOD, Baldock, Herts.: February 7th, 1893.

*Rhodocera Cleopatra*, Linn., in January.—It can hardly fail to be of interest to record that my cousin, Miss B. C. Casey, met with a ♂ example of *R. Cleopatra* yesterday afternoon on Mont Vinaigrier, near Nice. I should hardly have believed the possibility of such an occurrence had I not myself been a witness, as the species is only stated as being on the wing from February onwards. The specimen was very fresh, and as it was found immediately beneath its food-plant (*Rhamnus*), I concluded that it had just emerged from the pupa. The present seems a forward season on the Riviera, and some of the spring plants, as *Biscutella didyma* for instance, have been in full flower ever since the 22nd inst. in sheltered situations.—FRANK BROMILOW, Nice, France: January 30th, 1893.

[We regard this a parallel case to that of *Rh. rhamni*, hibernated specimens of which have occasionally been seen on the wing in England in January.—Eds.]

*Re-occurrence in Britain of Catocala electa*, Bkh.—No! In stating in Ent. Mo. Mag., 2nd series, vol. iii, p. 308, that among the *Macro-Lepidoptera* that fell to my share last season the greatest prize was *Micra parva*, I was wrong, decidedly wrong, and I am delighted to acknowledge the mistake, and to make amends by now recording the occurrence of a still more highly-prized treasure in the shape of *Catocala electa*, of which I was fortunate enough to take a specimen here on September 12th of last year. Until that date, the only example ever previously captured in Britain was secured at sugar, near Brighton, by Mr. A. C. Vine, on September 24th, 1875, as recorded in "The Entomologist," vol. viii, pp. 282—3.

As the circumstances under which the insect was found were rather peculiar, it may be interesting to relate them. When our wall fruit is due, and especially when our peaches—all grown out of doors, and entirely without protection of any sort, except the bare walls against which the trees are trained—are ripe, we always have two or three simple but most effective "traps" for flies and wasps placed near the trees: each one consists of two square "hand-lights," one placed on the top of the other, the crevices along the "line of contact" being filled up with tow. Each corner of the lower "light" is raised on a small inverted flower-pot, so that it stands about five inches off the ground; a small pane of glass is removed from the top of



the lower "light," thus leaving a passage from the lower into the upper one; and on the ground underneath the erection is placed a small jam-pot or saucer, containing beer and brown sugar, decaying peaches, or similar tempting baits! Lured by the sweets, the insects descend and enter the trap from below, then—although there is no bait inside the upper "light"—they instinctively fly upwards into it through the hole left by the removal of the piece of glass, and, when once there, they "ne'er come down again," although there is nothing special to prevent their doing so! It is surprising what enormous numbers of them are caught by this simple contrivance, which also acts as a death-trap to a good many butterflies and moths; in a year like the last, when *Vanessa Atalanta* is abundant, dozens upon dozens of them are to be seen inside the glass, and one can often get an idea of what *Noctuæ* are to the fore at the time.

Now, it should be mentioned that *C. nupta* seems to be scarce with us—in fact, the only two specimens of it that I have ever taken were found inside one of these same wasp-traps in the year 1875! When, therefore, on September 12th, 1892, I caught a glimpse through the dim glass of a large moth of that shape, my first thought naturally was: "Halloa! here is our old friend *C. nupta* again, after an absence of seventeen years!" Having no box large enough for it in my pocket, I came back to the house in search of one, and after calling up a gardener to raise the upper "light" for me, I safely secured the moth, which was still alive. On looking at its markings, I was sorely puzzled by them, as the great difference in the pattern showed that it could not be *C. nupta*, but, as I was extremely busy at the time, it was duly set, labelled, and put aside for further examination. Last month, when working through the contents of the store-box in which it was temporarily "housed," and anxious to get it satisfactorily determined, I sent for foreign specimens of *C. electa* and *C. elocata*, thinking that the former would probably be about the mark. And so it proved, for a glance at the continental examples of *C. electa* showed that they were identical with my insect, which is a fairly good specimen, except as regards the right hind-wing, which, unfortunately, is blemished, and has lost a piece out of the black border; considering, however, the low-class company that it was keeping, the crowded state of the trap, and the fierce onslaughts made by some of the wasps on their fellow-prisoners, one must be thankful that it was not more damaged.

It is only necessary to add that the insect cannot have been imported into this neighbourhood in any stage; if it is not a "genuine native, born and bred," it must have been favoured by fortune (up till that—for it—unluckily September 12th!) to have been enabled to successfully accomplish the long flight from the continent—the Channel itself opposite our coast being fully 60 miles in breadth at its very narrowest point!—EUSTACE R. BANKES, The Rectory, Corfe Castle, Dorset: February 2nd, 1893.

*The recent occurrence of the true Acidalia osseata, Hüb., in Britain.*—*Acidalia osseata*, Hüb., appears to have been claimed as a British species from the earliest date at which such small *Geometræ* were noticed in this country. It is recorded and described by Haworth, Stephens, and Westwood, and had a place in Mr. Doubleday's Lists, and it does not appear to have been until about 1867 that any doubt was felt as to its identity. Indeed, the doubt was then only aroused in an indirect manner: by the introduction of *Acidalia interjectoria* into our fauna as a new British species,

based upon the capture at Folkestone of specimens which, by reason of the richness of their colouring, and more particularly the fuller red-brown colour of the costa than in the ordinary form, suggested a probable novelty. These specimens were ascertained by Mr. H. Doubleday and Dr. Knaggs to be genuine *interjectaria*, Bdv., and were so recorded in the Entomologist's Annual for 1868, as well as in this Magazine. It was also then stated by Mr. Doubleday that we possessed both species—*osseata* and *interjectaria*—but before long it began to be recognised that the supposed distinctions in our native forms were unreliable, that the rather slight distinctions in colour did not present specific differences, that the shape and markings were identical, and that the other differences were fully bridged over by intermediate variation. Then came a time when it was important from a financial point of view that British *osseata* should be obtained, and accordingly specimens differing in no respect from those found upon the continent—having more pointed wings, strigæ more oblique, and the costa of quite a different red—were readily obtainable by those who were willing to pay a good price; and for a time these were believed to be genuine natives. Cause for doubt, however, arose, and in 1872 Mr. Doubleday wrote to me as follows: "I do not believe that the beautiful specimens of the true *osseata*, which \* \* brought here, and said were captured by \* \* were British. I looked at them with a lens, and believe that they had all been reset." And later he wrote that they were "gross impostures." This opinion became general, and the name *osseata* disappeared from our cabinets and lists. Some few years later it was ascertained from Professor Zeller that our *interjectaria* were certainly *dilutaria*, Hüb., and this name they still retain. He also forwarded genuine *osseata*, Hüb., thereby confirming the distinctness of that species from anything then known as British.

In the past two years, 1891—2, however, specimens were taken in the Isle of Wight by Mr. A. J. Hodges, which I have recently had the pleasure of examining, and which are undoubtedly genuine *osseata*, Hüb. Their fore-wings are narrower, and more pointed at the apex than those of *dilutaria*, the delicate undulating lines with which both are adorned are, in *osseata*, more oblique, and the colour of the costal region is quite different, being of a rather fiery red. In all these respects they agree accurately with continental examples of *osseata*, but are not more than from one-half to two-thirds the size of the latter; by which it appears probable that at the extreme south of these Islands the species has reached the extreme limit of its range, and maintains itself with difficulty. Of the genuineness of the present specimens there is no doubt. Their occurrence has already been announced by Mr. Hodges in the "Entomologists' Record." In Staudinger's list the species is called *humiliata*, Hüfnagel.—CHAS. G. BARRETT, 39, Linden Grove, Nunhead, S.E.: February 17th, 1893.

*Note on Abraxas ulmata.*—In reference to the communication from Mr. Gardner in the December number of the Ent. Mo. Mag. on the occurrence of the larva of the above species on beech, and on the rarity of such a food-plant, the following facts may be interesting. At the end of May last I found *ulmata* imagines in absolute profusion in the Beechwoods here, resting on the leaves of the undergrowth. In an hour or two one could have collected hundreds. Then in October last I found the larva of *ulmata* in the same profusion in the same Beechwoods. They were crawling on the trunks, at rest on the leaves, hanging from the twigs, and marching on the

ground. These woods are purely beech, and there is not an elm within half a mile, so that probably, in this case at any rate, the beech and not the elm is the normal and accustomed food of this insect.—ALEX. NASH, Standish Vicarage, Stonehouse, Gloucestershire: *February 4th*, 1893.

[At the time Mr. Gardner's note was published, it occurred to me that *A. ulmata* had been always associated in my mind with *beech*, both at home and on the continent.—R. McL.].

*Occurrence of Retinia posticana*, Zett., in Norfolk.—Among a series of eighty specimens of *Retinia turionana* bred in 1891 from pupæ collected from shoots of Scotch fir around King's Lynn, is one differing in several respects from typical *turionana*. The small size of this specimen, its exceptionally dark blackish head and thorax, and a comparative absence of reticulations in the basal two-thirds of the fore-wings, caused me to think that it might be *R. duplana*. It proves, however, to be a fine specimen of the *R. posticana*, Zett., a species which I believe has not previously been met with so far south, and is also an addition to our county list.—EDWARD A. ATMORE, 48, High Street, King's Lynn, Norfolk: *February 9th*, 1893.

*Occurrence of Ephestia Kühniella*, Zell., in Norfolk.—Some flour containing large numbers of Lepidopterous larvæ and pupæ was sent to me last autumn from a large mill in this county. The moths, which have since emerged, are undoubtedly *E. Kühniella*, and I understand they are working great mischief in the establishment whence they were sent to me. The existence of this very undesirable pest in Norfolk has, I believe, not been hitherto noted.—ID.

*Abundance of Sirex jurencus* at King's Lynn.—Some years ago a single specimen of this insect was brought to me by a plumber who captured it whilst at work on a Church steeple in the town. From that time I had not seen a specimen alive until last year, when my attention was called to "large flies," as they were termed, which were emerging from an old log of larch lying upon the boat quay of our harbour. I visited this log, or more correctly speaking, trunk of larch, repeatedly between the hours of 9 and 10 o'clock in the morning, and by so doing had the satisfaction of securing some three dozen specimens; of these five are males and the rest females. It was interesting to watch these handsome insects cutting their way out of the timber, a process, however, which I sometimes assisted by means of a penknife, and I may add, as often transferred a specimen to a box by the aid of a pair of forceps.—ID.

*Formica sanguinea*, &c., at Shirley.—In the last Feb. No. of the Ent. Mo. Mag., I recorded having found one small nest of this species where it was once so common. This year (1892) *sanguinea* very unwisely shifted the position of this nest to an open spot a few yards distant, no doubt more suitable for sun and warmth, but not for safety. The ants did well all the spring and summer till the August bank holiday, when the nest was raided and practically destroyed, the ants deserting the spot; but three smaller establishments close at hand, but in more secluded positions, were found within the course of the next fortnight. Workers of *Leptothorax acervorum* were again present in and about the nest, more especially during April and May. One worker which I watched entered the nest, remained a few seconds,

and came out again in no way interfered with by *sanguinea*; but a small nest of *Myrmica scabrinodis*, situated within a foot or two of *sanguinea*'s, which I opened up, was smartly attacked, and the workers dispersed. These observations seem to point to some fixed relations between *sanguinea* and *acervorum*, on the other hand, they are somewhat weakened by the fact that *acervorum* can be found at Shirley away from *sanguinea* in situations where the surroundings are similar, though I must say not with the same certainty as at the slave makers' nest; still, the inference of a fixed relationship would be much stronger could *acervorum* be found at Shirley only in *sanguinea*'s nest. In the spring months the workers of *F. fusca* present were smaller in size and few in number, as far as I could judge, not exceeding two per cent. of *sanguinea*, but as the summer advanced finer specimens occurred, and their numbers must have been nearly ten per cent. of their masters.

*Myrmica melanocephala*.—I captured one ♀ at Shirley in September; this is, I believe, a new locality for this species.

*Andrena fulva*.—This beautiful bee appeared in the spring in great numbers in the Crystal Palace grounds, adding quite an entomological feature to their other attractions. I have never met with *fulva* in this neighbourhood before, but Mr. Saunders tells me it is very common at Clapham, Wandsworth, and Tooting Commons in the south, as it is at Hampstead in the north of London.—G. A. JAMES ROTHNEY, 15, Versailles Road, Anerley: December 31st, 1892.

*Edemopsis scabriculus*, Grav.: an addition to the British *Ichneumonidae*.—Last September in this parish I took a female specimen of one of the *Ichneumonidae* which accords perfectly well with the excellent figure of *Edemopsis scabriculus*, Grav., in Vollenhoven's *Pinacographia*, pl. 32, fig. 1. I find also I have a male which I took in 1889.—C. W. DALE, Glanvilles Wootton: February, 1893.

*Coleoptera in Morayshire*.—During the past autumn I spent six weeks on the borders of the Culbin sandhills, close to the estuary of the Findhorn, about five miles from Forres. In this district *Coleoptera* proved (when worked for) to be extremely abundant; I have captured specimens of a good many species new to the district, one or two which have not, I believe, been recorded before from Scotland. The labour of working out and identifying all the insects taken by me is considerable, as a large number of them are very small, and I have as yet made but little progress. I, however, append a list of *Rhynchophora* and *Clavicornia*, and will send further lists as I work out the Families.

With regard to the locality. About 2½ miles above Forres, at a place called the Red Crag, the Findhorn River debouches from a defile, through which it has had a long course of some ten miles, running at a depth of about one hundred feet below the general level of the country, with steep banks, at least on one side, sometimes on both sides, and with a fairly straight course. Below this point the river runs through level country, with a winding course, which would be constantly changing were it not carefully looked after by those interested in the adjoining land. The river bed is very wide, and, as a rule, uncovered, consisting mainly of bare stones and shingle. At places, however, there are trees and other vegetation near the centre of the bed, and muddy pools and backwaters at the side. About a mile above the point where the estuary begins the river bed divides, and the course which, prior to 1829, formed the bed of the river, and which is, as a rule, uncovered by water,

connects with another stream, known as the Moy burn, which also runs into the Findhorn estuary. When the Findhorn river is in flood it runs by this course into the Moy burn. To the west of the estuary lie the Culbin sands, probably the largest sandhills in the British Isles, mostly bare and devoid of vegetation, and, as far as I could judge, of life of any description. The drifting sand, which seems ever changing, is at places piled up to the height of about one hundred feet. The sandhills proper, some two miles or more each way, are surrounded by a sandy district, more or less covered by vegetation, and both on the side of the sea and on the land side there is the usual coarse grass, with some willow. Plantations of birch at places run out into the sandhills, with finer grass and heather beneath; also broom and conifers, a strong belt of these trees lying to the south of the sandhills, and preventing their extension in this direction. At one point, where the sandhills run down to the Findhorn estuary, near the mouth of the Moy burn, there is a sort of salt marsh covered at times by the tide, and a short distance inland from this is a bare marshy spot or lake, which, however, must often be quite dry, and near this a place resembling a dry water course, with loose stones.

As to collecting. So far as I was concerned, sweeping, beating, and searching over what I may term the general country produced little or nothing, and hardly an insect was brought to me by a non-collector during my stay, but in my description I have indicated the places which proved suitable for autumn collecting, and these may be grouped as follows:—(a) The river bed and banks suitable for *Bembidia*, and other *Adephaga*, *Bledius*, and other *Staphs.*, *Cryptohypnus*, &c., but where, though I spent many days in searching, I could find no trace of *C. pulchellus*, recorded by Mr. Hislop in about 1867. (b) The salt marsh on the banks of the Moy burn for *Heteroceri*, *Cyllenus*, *Bledius*, *Dyschirius*, and small *Staphs.*, besides miscellaneous things, under seaweed and rubbish. Digging, and throwing the sand into a pail of water, was the most satisfactory method of working here. (c) The lake in the sandhills, where *Bledius* exist in thousands, with, of course, parasitic *Dyschirius*, and a few other insects, chiefly *Carabidae*, under stones. (d) The birch and fir plantations, and the country adjoining the sandhills. (e) Flood rubbish; a couple of days' hard rain brings down an enormous quantity of this material, leaves, pine-needles, twigs, boughs, and even trunks of trees are hurried down by the torrent; above the Red Crag, as will be gathered from my description, nothing is deposited, so that it is quite possible that the material is brought down from the upper parts of the river, and that the river has been collecting insects for miles of its course before they are deposited; below the Crag, in places where there is a backwater, or on the shingle, or even on the bushes adjoining the river, and down by the estuary, and especially along the banks of the Moy burn, below the point where it is joined by the overflow from the Findhorn, flood rubbish at times teeming with insect life may be found. The plan which I finally adopted was to collect a good supply of rubbish, either freshly deposited, or while still floating, into stout canvas bags or sacks, and then to turn it into large muslin bags, and dry it in the sun or before a fire, when the beetles soon showed themselves.\* Unfortunately, the first flood, which probably was the best, occurred before I knew the country, so that I brought back comparatively little refuse.

\* One of our most successful collectors at this sort of work, the late Mr. R. Lawson, of Scarborough, adopted the plan of using a long, tapering bag with a hole at the bottom, and by the application above of rags saturated with ammonia compelled the insects to leave the rubbish by the small opening below, the insects passing into a bottle placed beneath. By this means he obtained an immense number of rare *Anisotomidae*, *Staphylinidae*, &c.—G. C. C.

The beetles soon leave the refuse, and during and after a flood it is hard work to keep pace with the material; it would be quite impossible to do so without some artificial means of separating the beetles, such as is afforded by the muslin sacks. Autumn flood refuse near Forres produces a great variety of beetles, even *Lagria hirta* and an *Anaspis* or two turned up in this way in October, and about eighty specimens of *Anisotoma* found their way into my bottles.

The *Rhynchophora* taken include the following:—*Phytobius 4-tuberculatus* (b) and *leucogaster* (e); *Rhinoncus castor*; *Ceuthorhynchideus nigrinus* and *floralis*; *Ceuthorhynchus ohalybæus*, *contractus*, *cyanipennis*, *erysimi*, *quadridens*, *sulcicollis*, and *hirtulus* (?); *Caliodes ruber* (c) and *fuliginosus* (e), the latter in great numbers; *Orchestes rusoi* (e); *Anthonomus ulmi* (e); *Balaninus cerasorum* (e), a species new to Scotland; *Apion striatum* and *immune*, both on broom, *simile*, *Spencei*, *marochicum*, *ononis*, *æthiops*, *carduorum*, *ervi*, *frumentarium*, &c.; *Brachonyx indigena* (*pineti*), only one specimen (e); *Grypidius equiseti* (e); *Pissodes notatus* and *Hylobius abietis*, sparingly, beaten from fir (a); *Hypera plantaginis* and *polygona*, in great numbers (e), *polygona* appears to live along the banks of the Moy burn, almost in the water; *Tropiphorus mercurialis* (*tomentosus*) and probably *obtusius*, at least some of the specimens have the elytra very distinctly shaped as described in Canon Fowler's "Coleoptera of the British Islands," but I am not satisfied that I have more than the sexes of *mercurialis*. *Otiorynchus atropterus* (d), *maurus*, only one (e), *blandus*, very common (a, b, e), *muscorum* and *ovatus* (e), *septentrionis* (e), also one specimen of the latter from the grounds by Nelson's monument, Forres, by sweeping broom and young firs; *Barynotus Schönherri* (e); *Sitones griseus*, in immense numbers on broom wherever growing—it seems strange that there should ever have been any doubt that this insect was Scotch, *sulcifrons*, by thousands out of flood-rubbish; also *Sciaphilus muricatus* (e); *Rhynchites megacephalus*, one beaten out of birch (d); *Hylastes palliatus* (e); *Trypodendron lineatum* (e); *Hylurgus piniperda* (e).

The *Clavicornia* comprise:—*Agathidium lævigatum* (d), *marginatum* (e), and *nigrinum* (d); *Cyrtusa minuta* (e); *Anisotoma picea* (2), *rugosa* (5), *Triepkei*, *obesia* or *dubia* (or perhaps both), and *calcarata*; *Hydnobius punctatissimus* (5), a species new to the north of Scotland, I believe, (all e); *Colon dentipes* (e); also a light coloured silky species of *Colon* from flood refuse, which has slight traces of striae, and which I cannot determine; *Choleva angustata* (e), *cisteloides* (e), *chrysomeloides* (d), *tristis*, *longula*, *grandicollis*, and some specimens which I have identified somewhat doubtfully as *Kirbyi* (d); *Necrophorus ruspator* (d) and *humator* (d). For *Choleva* and carrion beetles the heads of dead codfish placed on the sandhills formed an attractive and workable bait. *Sphærites glabratus* (e), one specimen only; *Onthophilus striatus* (e). *Coccinellidæ* were strongly represented, amongst them *Coccinella hieroglyphica*, including the black form (d), *obliterata* (e), *oblongo-guttata*, *ocellata*, 18-guttata, 14-guttata, 16-guttata (all d), the last mentioned common on birch at one spot; 5-punctata (a and e); 11-punctata (d and e)—the only form of this insect which I found is the var. d of Mulsant, with the side spots large and confluent, called *brevifasciata* by Weise. I have never seen this form before: it does not appear to have been taken by many English or Scotch collectors. The type form of *C. 11-punctata* did not turn up at all; the larva occurred on

\* The letters added to the species refer to the above localities.

the salt marsh under seaweed, rubbish, &c.; it is a puzzle to me what it usually feeds on. *Scymnus nigrinus* and *Ezochomus 4-pustulatus* (e). The following complete the named *Clavicornia*, except the very commonest species:—*Nitidula bipustulata* (d), *Epuræa parvula* (e), *Parnus prolifericornis* and *auriculatus* in the Moy burn, *Heterocerus flexuosus* or *femoralis* (b), *Elmis Volkmaria*, *æneus* and *parallelo-pipedus*; *Hydræna nigrita*, *gracilis*, *atricapilla*, and *pulchella* (?); also *Laccobius minutus* and *nigriceps*; (in the burn or refuse) *Ochthebius exsculptus* and *pygmaeus*; *Corticaria umbilicata*, *fulva*, *denticulata*, *punctulata* and *serrata* (?), (e); *Cerylon angustatum* (e); *Rhizophagus depressus* (e); *Cryptophagus pubescens* (in nest of *Verpa vulgaris*), *pilosus*, *setulosus*, and (I believe) *punctipennis*; *C. bicolor* and *dentatus*—one of the specimens referred to this species by a good authority is quite unlike any *Cryptophagus* I have ever seen, having the elytra wider than the thorax, like *Paramecosoma*, and being much larger; *Paramecosoma melanocephalum* (all e); *Cytilus varius* (pupa), *Simplocaria semistriata*.—A. J. CHITTY, 33, Queen's Gate Gardens, S.W.: December 13th, 1892.

*Hydroporus obsoletus*, Aubé, at Marlborough.—Among some beetles sent to me for determination from Marlborough, was a specimen of this rare *Hydroporus*. Mr. E. Meyrick, who captured the specimen, has sent me the following note regarding it:—

"As this specimen was taken by myself, you may like to know the peculiar circumstances under which it occurred. I found it (alive) in my bath water, which was pumped up from a pump communicating with a closed well in the basement of my house in this town (centre of town); the well is completely enclosed inside the house, and flagged in. The water rises in the chalk, and there is no stream or surface spring anywhere in the neighbourhood. There were two specimens on two consecutive mornings; the first I unfortunately neglected, thinking it must have got in by accident, but when I saw the second, I was convinced it really came from the well, and captured it for the curiosity of its origin, on the chance that it might be something peculiar. No other creature has ever come up in the water, which (although, as I say, in the town) is pure and wholesome, and perfectly clear."

The beetle was first noticed as British by Dr. Power, who captured it at Balmuto (Fifeshire), "one or two specimens at a time, in a small pool in a burn after a storm," and who, thinking it a new species, named it *H. Ashworthii*. Dr. Sharp captured it in the Solway district, and states that its occurrence in Britain at is strange, as it is a native of Syria and South Eastern Europe, and it has also been taken in North Wales, Yorkshire, and Northumberland. The capture of the insect at Marlborough is interesting, as affording the first record of its occurrence in a southern county.—W. W. FOWLER, Lincoln: February 16th, 1893.

*The Coccidæ of a guava tree*.—It is surprising how many species of *Coccidæ* may sometimes be found on a single tree in Jamaica. On January 15th I found the following eight all on one guava tree (*Psidium*) in Kingston:—1. *Lecanium oleæ*, Bern., several on the twigs. 2. *L. hemisphericum*, Targ., on under-side of leaves. 3. *Vinsonia stellifera*, Westw., one scale on under-side of a leaf. 4. *Pulvinaria cupania*, Ckll. MS., on upper- and under-side of leaves; ovisacs showing cecid puparia projecting; immature scales attended by a black ant with a reddish face. 5. *Aspidiotus articulatus*, Morg., on upper-side of leaf. 6. *A. personatus*, Comst., on both sides of leaves. 7. *A. ficus*, Riley, a young one on under-side, and an adult

on upper-side, of leaves. 8. *Ceroplastes floridensis*, Comst., on upper-side of leaves. An egg shell of *Chrysopa* was found on a leaf. Can any one tell of a greater number of *Coccids* on any one tree?—T. D. A. COCKERELL, Institute of Jamaica, Kingston, Jamaica: *January 18th*, 1893.

*Hystrihopsylla talpæ*, Curt. (= *obtusiceps*, Rits.).—This giant flea should certainly retain the name of *talpæ*, Curt., as pointed out by Mr. Dale (Ent. Mo. Mag., xxvi, 161); since it not only has a claim to this name by the laws of priority, but also by the fact that it does occasionally occur on the mole, although I think it is evident that the field vole and mouse are its usual hosts. I have one specimen from Mr. Piffard off a mole, and two set up as microscopic objects (bought) and labelled, "*Pulex Melis*, Badger flea off Mole!" Mr. Chitty has asked me to point out that in his note at p. 20 *ante* the sign ? was omitted in error after "*Typhlopsylla musculi*;" he did not wish to give a definite name, not being certain as to the identity.—EDWARD SAUNDERS, St. Ann's, Woking: *January 12th*, 1893.

*Felt versus Pith, for mounting minute insects*.—Referring to Mr. McLachlan's note on this subject, which appeared in the January number of the Ent. Mo. Mag., I should be interested to know if he or Mr. Farren has tried felt as a material for holding fine pins. A few years ago I was mounting some *Chironomidae* and other small *Diptera*, and used pith cut into small cubes and gummed on cards to receive the pins. I believe that I tried both elder and artichoke pith, but, possibly from the fact that it may not have been properly dried, it proved unsatisfactory. It then occurred to me that felt might be a good substitute; I got a piece of this material from a surgical instrument maker, and cut it up with a sharp razor in the same way as the pith, and the result was in every way satisfactory, and I have used nothing else since. The felt is about three-eighths of an inch thick, firm in texture, fairly good in colour, and will take the finest Austrian silver pins without bending them; in addition to this, it is not liable to shrink under any conditions, and cannot injure the part of the pins inserted in it; if desired it could also be soaked before use, without injury, in a solution of corrosive sublimate or arsenic. When in London in January I spoke to Messrs. Watkins and Doncaster on the subject of "*felt versus pith*," and they kindly offered to get me samples of the former, these they have now submitted, and I have been able to choose one which will answer my purpose admirably; no doubt Messrs. Watkins and Doncaster would show a piece of the material to any one interested in the subject.—COREYNDON MATTHEWS, Erme Wood, Ivybridge, South Devon: *February 6th*, 1893.

[I have had no experience of felt, but a sample that Mr. Matthews kindly submitted to me seemed likely to answer the purpose, but not more so than artichoke pith. I am told the latter, roughly prepared, can be obtained from dealers in watch makers' materials; for entomological purposes it would no doubt require "sorting." I have no experience of pith "gummed on card." The usual practice is to insert the pin on which is the insect *through* a small cube of pith, which latter receives a longer pin on which are the necessary labels. In the case of very minute insects, several can be mounted on one cube or "oblong" of pith.—R. McLACHLAN].

*Mould in Cabinets*.—Will some kind friend advise me how to prevent a small white fungus (I suppose some sort of *Penicillium*) which infests my cabinets of



*Coccids*? It is necessary, in the case of these insects, which cannot be displayed like the *Lepidoptera*, to have them *in situ* on pieces of twigs or leaves which they naturally inhabit. A *Coccid* cabinet, therefore, is not so pretty an object as if it contained butterflies and moths, and as I have striven to make mine as completely typical as possible, it looks, to the naked eye, only a collection of sticks and leaves with ornamental labels. Now, these sticks and leaves, naturally, I suppose, attract moisture. Moreover, the climate of this place (Wellington), which has the sea almost all round it, is anything but a dry one; and the hot days are generally the dampest; also the air is often full of sea salt. Consequently, my specimens persist in becoming more or less subject to small white mould. Wherever I can, I touch them with a little alcohol; but this is not good, as it is apt to injure the cottony secretions of the specimens. What ought I to do? I am constantly using the drawers, and so do not want, if it can be avoided, to employ any stinking chemicals which might annoy others in the house.—W. M. MASKELL, Wellington, New Zealand: November 23rd, 1892.

[We shall be glad of suggestions.—EDS.]

### Obituary.

*The Rev. Francis Orpen Morris, B.A.*, died at Nunburnholme Rectory, Yorkshire, on February 10th, 1893, at the age of 82. He wrote a series of highly illustrated works on British Butterflies and Moths, Birds, Birds' Eggs, &c.

*Edward Parfitt* was born near Norwich, on October 17th, 1820, and died at Exeter on January 15th, 1892. His father was head gardener to the Dean of Hereford, and afterwards to Lord Hastings, and young Parfitt commenced life as a gardener under his father, and very early showed a passion for Natural History. It was probably this that induced him as a lad to go to sea: he made one voyage to the Cape, was wrecked there, and occupied himself by collecting the plants and insects of Cape Town. On his return, he resumed horticultural occupation, and in that capacity went to Devonshire about 1850, and subsequently became Curator of the Taunton Museum. In 1861, he became Librarian of the Devon and Exeter Institution at Exeter, and remained such until his death. During the whole of this latter period he devoted himself with ardour to the study of the Fauna of Devon in all its branches, and his memoirs on this subject were published in the Proceedings of the Devonshire Association for the advancement of Science. He accumulated large local collections, both zoological and botanical. It will be gathered from the above sketch of his life that Parfitt was essentially a self-educated man: his passion for Natural History was intense, and he would have done better work had he not aimed too high by trying too much. He will be much missed at Exeter. We take this opportunity of mentioning that the note-books, &c., containing mostly unpublished material, left by the late Rev. J. Hellins, came into Mr. Stainton's possession, and were by him presented to the Devon and Exeter Institution shortly before his death.

### Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY.—Annual Meeting: February 6th, 1893.—Mr. W. G. BLATCH, President, in the Chair.

The Annual Reports of the Council and Treasurer were presented, the latter showing but the very light balance in hand of £1 2s. 1d. The following were

elected as Officers and Council for 1893 :—President, Mr. W. G. Blatch, F.E.S. ; Vice-President, Mr. G. H. Kenrick, F.E.S. ; Treasurer, Mr. R. C. Bradley ; Hon. Secretary, Mr. Colbran J. Wainwright, 147, Hall Road, Handsworth, Birmingham ; Librarian, Mr. A. H. Martineau ; and remaining Members of Council, Messrs. G. T. Bethune-Baker, F.L.S., F.E.S., and G. W. Wynn.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

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LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY : *February 9th*, 1893.—Mr. S. J. CAPPER, F.L.S., F.E.S., President, in the Chair.

The Chairman referred to the death of the Rev. F. O. Morris, which occurred last Saturday, in his eighty-third year. Mr. C. H. Hesketh Walker read a paper, entitled, "Pond Life." Referring to hobbies generally, he considered Natural History was one of the most interesting. He then stated that a stagnant pond was a paradise prolific in animal life, and poetically described it with all its attendant insects, &c., showing by a table that examples of most of the animal kingdom from Protozoa to Mammalia were to be found therein. Proceeding, he gave brief descriptions of these animals, illustrating his remarks by rapidly-drawn figures on the black-board. The President exhibited some fine varieties of *Arctia Caja*, also a number of port wine corks completely riddled by some Coleopterous or Lepidopterous larvæ. Mr. Locke, *Carabus glabratus* from Langdale Pikes. Mr. Deville, *Goliathus giganteus* from Camerouns ; and Mr. Gregson, *Noctua triangulum*, from Lancashire and London.—F. N. PIERCE, *Hon. Sec.*, 143, Smithdown Lane, Liverpool.

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THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY : *November 25th*, 1892.—C. G. BARRETT, Esq., F.E.S., President, in the Chair.

Mr. J. Jenner Weir exhibited *Pyrameis cardui*, L., from Larimer County, Colorado, at an elevation of upwards of 7000 feet, and remarked thereon. Mr. R. Adkin, *Zygana filipendule*, L., showing gradations of colour intermediate between the red and yellow forms. Mr. F. W. Frohawk, a bred series of *Smerinthus tilia*, L., showing variation. Mr. R. South, malformed specimens of *Lepidoptera*, including *Papilio Machaon*, L., *Melitæa Athalia*, Rott., and *Lycæna bellargus*, Rott. Mr. Dennis, a very dark form of *Vanessa cardui*, L., and examples of *Colias Edusa*, Fb., bred from ova obtained in August. Mr. H. Williams, pupæ of *Colias Hyale*, L., reared by him from ova obtained from a captured female. Mr. Tugwell, *Dianthæcia Barrettii*, Dbl. Mr. Barrett, on behalf of Mr. Collins, of Warrington, dark varieties of *Acronycta leporina*, L.

*December 8th*, 1892.—The President in the Chair.

Mr. F. W. Frohawk, on behalf of Mr. Merrifield, exhibited specimens of *Pieris napi*, L., *Polyommatus Phlæas*, L., and *Vanessa Atalanta*, L., the pupæ having been subjected to various temperatures. Mr. Farren showed four aberrations of *Papilio Machaon*, L., and a series of very dark brown and black varieties of *Chauliodes charophyllellus*, Göze. Mr. South, a specimen of *Eriogaster lanestris*, L., ♀, with ova showing between the segments of the abdomen. Mr. Hawes, the two seasonal forms of *Pieris napi*, L., both bred from the same female ; also examples of the same species, the larvæ having been fed on different food-plants, and made some observations as to the effects produced. Mr. Tutt, examples of several species of the genus

*Taniocampa*, which Dr. Chapman had extracted from the pupa cases in some instances as early as October 25th. Mr. Frohawk, hibernating larvæ of *Carterocephalus Palæmon*, Pall. Mr. Elisha, two drawers (one of *Coleophora* and the other of *Nepticula*) with cases, labelled to show the time of appearance, food-plant of the larva, and locality. Mr. Elisha stated that he had adopted this system for the whole of his collection of *Tineina*. Mr. R. Adkin, on behalf of Mr. Austin, some very fine examples of *Colias Edusa*, Fb., var. *Helice*, Hb., taken at Folkestone, and other species from the same locality taken by himself.

December 22nd, 1892.—The President in the Chair.

Mr. W. H. B. Fletcher exhibited a long series of *Psilura monacha*, L., and said he obtained ova from a normal ♀ in 1887 from Mr. Tate, and by careful selection he had at last obtained a dark race, and had no doubt that in time perfectly black specimens would be produced. Mr. Tugwell said the black form occurred at West Wickham, he having taken it there, showing that the black specimens occur near London. Mr. Adkin pointed out the difference between the genuine British specimens and those from the Continent, the latter had a smoky-brown ground colour approaching *O. dispar*. Mr. South supported Mr. Fletcher's views as to the production of black specimens at will, and said also that a light form could be obtained by eliminating all the dark ones, and the dark race could be produced by excluding all the light forms. The discussion was continued by Messrs. Frohawk and Fenn. Mr. Adkin exhibited *Taniocampa gothica*, L., and var. *gothicina*, H.-S., and contributed notes. Mr. H. Williams, two males of *Colias Hyale*, L., bred this season from ova obtained from a female captured at Northfleet last September.—H. W. BARKER and A. SHORT, Hon. Secs.

February 9th, 1893.—J. JENNER WEIR, Esq., F.L.S., President, in the Chair.

Mr. Frohawk exhibited hibernating larvæ of *Epinephele Janira*, and stated that they fed intermittently throughout the winter, seldom remaining more than ten or twelve days without food. Mr. Adkin, a bred series of *Aplecta prasina* (*herbida*). Mr. Waller a bred series of *Smerinthus tilia*, one of which exhibited a tendency towards melanism. Mr. McArthur, *Taniocampa gothica*, var. *gothicina*, *Coccyx cosmophorana*, and *Retinia duplana*, and a discussion ensued. Mr. Adye, a fine and variable series of *Boarmia repandata*, taken at sugar in the New Forest, July, 1892. Mr. Weir exhibited a photograph taken from "Insect Life" for January, 1893, of a twig bearing some two dozen specimens of *Anosia Plexippus* resting at night during migration, and read a paper which illustrated the migratory instinct of this, and indirectly of other species. A discussion, in which Messrs. Barrett, Weir, and Hawes took part, then followed, it being noted that whereas some dozen or more captures of *A. Plexippus* were recorded for this country, only three were known to have been taken on the continent of Europe. Mr. Mansbridge exhibited specimens illustrating his paper, and read, "Notes on Melanism in Yorkshire *Lepidoptera*," remarking on the tendency to melanism shown by many species within the boundaries of the towns, whilst in damp spots, barely five or six miles away, the same species would appear in quite its normal lighter coloration. Many instances were cited, chiefly among the *Noctuæ* and *Geometræ*. Mr. Tutt proposed, and Mr. Barrett seconded, a vote of thanks to Mr. Mansbridge for his paper.—F. W. HAWES and H. WILLIAMS, Hon. Secs.

ENTOMOLOGICAL SOCIETY OF LONDON: *February 8th, 1893.*—HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

The President announced that he had nominated Mr. F. DuCane Godman, F.R.S., Mr. Frederic Merrifield, and Mr. George H. Verrall, as Vice-Presidents during the Session 1893—1894.

Mr. Charles R. C. Hibbert, of Holfield Grange, Coggeshall, Essex; Mr. Oswald B. Lower, of Bleak House, Parkside, Adelaide, South Australia; and Mr. John Baxter Oliver, of 12, Avenue Road, St. John's Wood, N.W., were elected Fellows of the Society.

Mr. S. Stevens exhibited a specimen of *Charocampa celerio*, in very fine condition, captured at light, in Hastings, on the 26th September last, by Mr. Johnson.

Mr. A. J. Chitty exhibited specimens of *Gibbium scotias* and *Pentarthrum Huttoni*, taken by Mr. W. Rye in a cellar in Shoe Lane. He stated that the *Gibbium scotias* lived in a mixture of beer and sawdust in the cellar, and that when this was cleaned out the beetles disappeared. The *Pentarthrum Huttoni* lived in wood in the cellar. He also exhibited *Menium affine*, taken by himself in a granary in Holborn.

Mr. McLachlan exhibited a large Noctuid moth (*Erebus odora*, L.), which had been placed in his hands by Mr. R. H. Scott, F.R.S., of the Meteorological Office. It was stated to have been taken at sea in the South Atlantic, in about lat. 28° S., long. 26° W. Colonel Swinhoe and the President made some remarks on the species, and on the migration of many species of *Lepidoptera*.

Mr. W. F. H. Blandford exhibited larvæ and pupæ of *Rhynchophorus palmarum*, L., the Gru-gru Worm of the West Indian Islands, which is eaten as a delicacy by the Negroes and by the French Creoles of Martinique. He stated that the existence of post-thoracic stigmata in the larva of *R. cruentatus* had been mentioned by Candèze, but denied by Leconte and Horn. They were certainly present in the larva of *R. palmarum*, but were very minute. He also exhibited a piece of a drawing board, showing extensive injury by longicorn larvæ during a period extending over seven years.

Mr. G. T. Porritt exhibited two varieties of *Arctia lubricipeda* from York; an olive-banded specimen of *Bombyx quercus* from Huddersfield; and a small melanic specimen of *Melanippe hastata* from Wharfedale Wood, Yorkshire.

Mr. H. Goss exhibited a few species of *Lepidoptera*, *Coleoptera*, *Hemiptera*, and *Neuroptera*, sent to him by Major G. H. Leathem, of the 31st Regiment, who had collected them, last June and July, whilst on a shooting expedition in Kashmir territory, Bengal. Some of the specimens were taken by Major Leathem at an elevation of from 10,000 to 11,000 feet, but the majority were stated to have been collected in the Krishnye Valley, which drains the glaciers on the western slopes of the Nun Kun range. Mr. Elwes remarked that some of the butterflies were of great interest.

Mr. G. F. Hampson exhibited a curious form of *Parnassius*, taken by Sir Henry Jenkins, K.C.B., on the 29th of June last, in the Gasterthal, Kandersteg.

Mr. J. M. Adye exhibited a long series of remarkable varieties of *Boarmia repandata*, taken last July in the New Forest.

Mr. C. O. Waterhouse exhibited a photograph of the middle of the eye of a male *Tabanus*, showing square and other forms of facets, multiplied 25 times.

Mr. Roland Trimen communicated a paper, entitled, "On some new, or imperfectly known, species of South African Butterflies," and the species described in this paper were exhibited.

Mr. T. D. A. Cockerell communicated a paper, entitled, "Two new species of *Pulvinaria* from Jamaica."

Mr. Martin Jacoby communicated a paper, entitled, "Descriptions of some new genera and new species of *Halticidæ*."—H. Goss, Hon. Secretary.

## NEW OR LITTLE KNOWN COCCIDÆ, CHIEFLY ENGLISH, No. 3.

BY R. NEWSTEAD, F.E.S.,  
 CURATOR, GROSVENOR MUSEUM, CHESTER,

## RIPERSIA TOMLINII, Newstead.

Ent. Mo. Mag., vol. iii, n. s., p. 146, pl. ii, fig. 6, *a, b, c*.

When the description of this species was published (*l. c.*), I was unable to furnish the names of the ants in whose nest the *Coccids* were found. On subsequently reading Mr. Smith's interesting remarks on the "Origin of Ants' Nests" (Ent. Mo. Mag., vol. iii, pp. 60, 307), I was all the more anxious to ascertain the name of the ants, and to get a further supply of *Coccids* and information. The only course open to me was to write the Secretary of the Guernsey Nat. Hist. Soc., to put me into communication with a Member who would be willing to take the matter in hand. This I did, and Mr W. A. Luff kindly offered his services, and on August 1st, 1892, forwarded two specimens of the *Ripersia*, together with specimens of the ants as they were found.

Mr. Luff remarked "that they were found under a stone on the cliffs near Moulin Huet Bay. I searched carefully in nests of other species of ants, and also under stones where there were no ants, but did not see another specimen. This was the only nest of this species of ant that I found."

The ants were kindly determined by Mr. E. Saunders as *Tetramorium cæspitum*; this, at the time, seemed a very remarkable coincidence, as Mr. Smith's *Coccids* belonged to the genus *Ripersia*, and were found in the nests of two species of *Tetramorium*.\* On August 12th Mr. Luff kindly forwarded another lot of *Coccids* and ants which he had taken at Alderney; this is a new locality for the *Coccids*, which are undoubtedly *R. Tomlinii*, and the ants were *Lasius alienus*. From the liberal supply of *Coccids* I have been able to add some important particulars. With the specimens Mr. Luff enclosed the following:—

"I particularly noted that the *Coccids* were found only under stones covering ants' nests, and in many instances were some distance down the holes leading to the interior of the nest. When I loosened a *Coccid* from the grass root to which it was attached, the ants carried it off into the interior of the nest; and in two instances I saw several ants loosen a *Coccid* themselves, and carry it away. Even portions of the sac which I had broken off would be eagerly seized on and carried off."

I think Mr. Luff's remarks are of the greatest value and interest to those who are interested in the subject. But whether the *Coccids* are originators of ants' nests I am not prepared to determine. My experience tends to prove that ants do seek *Coccids*, and this no doubt for the purpose of obtaining from them such material as is tasteful

\* Since referred to the genus *Monomorium*.

to them. I cannot say that the ants obtain anything from this *Ripersia* or from the *Ripersia* hereafter described; but I have seen ants (*Formica flava*) evidently trying to extract something from *Coccids*, and this too directly from their bodies, and not from "honey-dewed" plants.

During the year 1890 a Naturalist friend called my attention to a colony of ants which he said were constantly visiting some "American blight" on his apple trees, evidently for the purpose of obtaining from them "honey-dew" or other liquid, which he said he had seen them extract on one or two occasions. On visiting the locality, the so-called "American blight" proved to be a species of *Pseudococcus* not yet determined, and the ants of the species mentioned above. There were very many of the *Coccids*, all adult females, just about to construct their ovisacs; these were visited by a various number of ants, whose *modus operandi* was as follows:—three or more generally surround a single *Coccid*; one of them, usually the first comer, would place its front legs on the back of the *Coccid*, with its head in the same direction as the latter; it would then commence to stroke its back with its front legs and antennæ; when tired of this, a second ant would repeat the process, and so on; each awaiting its turn. Although I watched them for some time, I did not see them extract anything from the *Coccids*. Judging from what I could perceive, the *Coccids* were rarely free from the ants; they appeared completely harassed, and had evidently tried to protect themselves by wedging their bodies into the smallest crevices that would admit them. Through the constant visits of the ants the bodies of the *Coccids* were almost denuded of their mealy covering. Whether the ants behave in a similar way to the *Ripersiæ* has yet to be ascertained, and there is a wide field for investigation.

Below I append a further contribution to the details of the species.

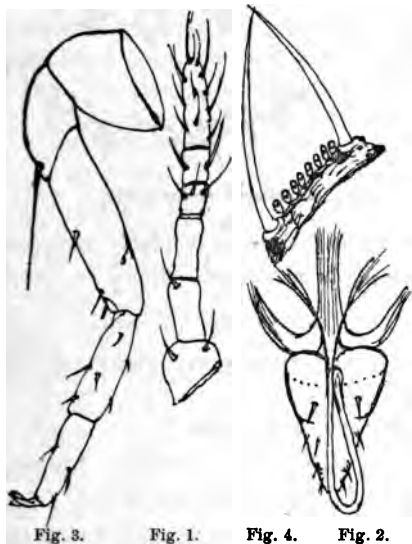
♀ adult; form variable, short rounded-oval, under-side flattish; above gibbous, or nearly hemispherical; antennæ variable, the more constant form is of seven joints, of which the 7th is nearly as long as the 1st, 2nd and 3rd together; 3rd, 4th, 5th and 6th shortest, and in length nearly equal. By dividing the long 3rd joint, and erasing the last joint of the fig. 6 of the antennæ given on pl. ii (*l. c.*), a correct idea will be obtained.

Almost the same variation has occurred in the antennæ of *Ripersia pulveraria* (see same pl., figs. 7 and 7a), and a still greater variation in the antennæ of *Prosopophora dendrobii*, Doug. (Ent. Mo. Mag., vol. iii, n. s., p. 207, pl. 3, figs. 1b and 1bb), which has no less than four variations; some of these latter are undoubtedly due to parasitic

attacks, but I could not find any of the *Ripersia* parasitized, which makes it all the more extraordinary.

*RIPERSIA SUBTERRANEA*, *n. sp.*

♀ adult; dark red-brown, turns dark purple in caustic potash; more or less pyriform, narrowed in front, distinctly segmented. Body with numerous circular



openings and a few fine short spines. Anal lobes nearly obsolete, each with a single hair rather longer than is usual. Antennæ of six joints (fig. 1), of which the 6th is not quite as long as the 3rd and 4th together; 4th and 5th shortest, and in length equal. Rostrum (fig. 2) large, biarticulate? (some appear to have three joints), with several short, fine hairs; unexpanded filaments very short. Anterior legs (fig. 3) nearly as long again as the antennæ; posterior pair longer; tarsi a little shorter than the tibiæ; claws with two very short, fine digitules; trochanter with a single long hair; the ordinary digitules to tarsi replaced by a single long hair. Anal ring with six hairs, intervening spaces with a series of curious raised tubercles (fig. 4). I think they are viviparous, as many of the females contained well developed larvæ, but I failed to make out any distinctive characters from them, and as they did not produce any in captivity, I cannot furnish a description.

Long.,  $1\frac{1}{2}$ — $2\frac{1}{4}$  mm.; wide,  $1$ — $1\frac{1}{4}$  mm.

♀, 2nd stage; ovate, ends nearly equally rounded, convex above, dark red-brown; legs yellowish, thickly covered with a white mealy powder; segments distinct; anus with two very short, white, waxy filaments, which are frequently wanting.

♂, unknown, in any stage.

*Hab.*: on roots of *Nardus stricta*, in nests of *Formica flava*, on a raised shingle beach at Ingoldisthorpe, near King's Lynn, Norfolk, August 20th, 1892.

I found many examples on the plants, and in the situations given above; none occurred at the roots of other grasses, either in or out of the nests of *F. flava*, nor could I find a single example at the roots of *Nardus stricta*, except those growing in the ants' nests. The ants in question did not appear to take the slightest notice of the *Coccids*, although I placed specimens amongst them, and watched them most carefully. This it will be seen is quite the opposite to Mr. Luff's experience.

Chester: January 2nd, 1893.

*ASPIDIOTUS PALMÆ* AND *DIASPIIS TENTACULATUS*, N.SPP.  
(ante pp. 40—41).

BY A. C. F. MORGAN, F.L.S.

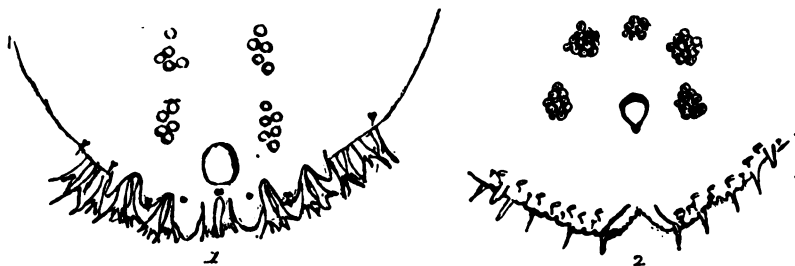


Fig. 1—*Aspidiotus palma*. Fig. 2—*Diaspiis tentaculatus*.

[These copies of Mr. Morgan's figures were unavoidably omitted, through the drawings having been mislaid.—Eds.]

*GRAPHOLITHA GEMMIFERANA*, TR., HITHERTO UNRECORDED  
AS BRITISH.

BY W. H. B. FLETCHER, M.A., F.E.S.

On the 27th of May, and the 2nd of June, 1890, I had the pleasure of taking in a Hampshire locality several males and a few females of this species. The moths were flying, or could be stirred up easily among the numerous species of *Leguminosæ* growing on the spot.

In colour, *G. gemmiferana* resembles *G. cæcana*, for which at first I mistook it. Both fore- and hind-wings, however, are much more ample; the female, indeed, has a remarkably square appearance when set out. The geminated markings on the costa are well developed, and from one of them a lustrous leaden line is produced towards the anal angle, bounding the ocelloid patch on its inner side, and meeting beneath it a second line, which is broken in the middle, and which borders the outer edge of the patch; in the patch are four well-defined black spots or short streaks, and more rarely two smaller spots above them; there are also two similar spots between the second leaden line and the hind margin. The female is much smaller than the male, and has both fore- and hind-wings darker; it has also the basal portion of the fore-wings conspicuously darker than that beyond the first transverse leaden line.

Alar. expanse of ♂, 16·5 mm.; of ♀, 12·5 mm.

I believe that the honour of taking this species in England for the first time belongs to the late Mr. Howard Vaughan, and that a few specimens were sold in his collection in May, 1890. It would be interesting to learn from the purchaser of Lot 138, or of an adjacent one, if this were the case or not.

I had hoped to have been able to have furnished with this note a



description of the larva, but none of those I took in September, 1890, which may have been *Endopisa pisana*, emerged as moths.

I am indebted to Lord Walsingham for his kindness in identifying my specimens.

Worthing: *March 13th*, 1893.

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A CONTRIBUTION TOWARDS A LIFE-HISTORY OF *PANCALIA*  
*LEUWENHOEKELLA*, L.

BY W. H. B. FLETCHER, M.A., F.E.S.

Some years ago, probably in 1888, Mr. Warren, who had taken some specimens of *Pancalia* in the fen district, asked me in a letter if any species of *Viola* grew in the places in which I found *P. Leuwenhoekella*. It happened that I had noticed that wherever I found that insect some sort of violet grew, and that it had occurred to me that possibly the plant and moth were not unconnected. At the time Mr. Warren wrote I was inclined to think that the larva might feed on a species of *Veronica*. On receiving his letter, however, I planted some dog violets in a large pan, and in the latter part of May, 1889, imprisoned some female *P. Leuwenhoekella* among them. Towards the end of June some very small particles of "frass" seemed visible in the hearts of the plants. Early in July it was plain enough that there were larvæ mining the petioles of the leaves and turning out frass through the small holes therein, as well as others depositing it in the centre of the plants.

A visit to the ancient British Camp, Cissbury, near Worthing, in the second week of the month, enabled me to find larvæ feeding in the same way in a state of nature in *Viola hirta*, though too small to be worth collecting in any quantity. On the 27th of the month I went again to the locality, hoping to make a good haul of larvæ; the only result was about five or six larvæ and harvest bugs *ad lib.* One of these larvæ, just about to undergo its last moult, was in a short opaque gallery of silk and rubbish between the roots of its food-plant, and had eaten a large patch of bark from its underground stem. Some of the larvæ captured earlier in the month and kept in a glass jar were then feeding in the same way.

The larvæ are very difficult to find. The leaves of which the footstalk has been mined wither and drop from the plants, and so do many others seemingly damaged by sheep, rabbits, slugs, and other vermin, while the gnawing of the bark by the larvæ does not cause the plants to flag.

The full-grown larva is about 10 mm. long when extended; slender, tapering posteriorly; head pale yellowish-brown, mouth-parts marked with darker brown, top of lobes, median suture, and clypeus narrowly edged with the same shade; segmental divisions, wrinkles, and a broken longitudinal line of subdorsal indentations, strongly defined; ground colour of body pale yellowish-brown, showing chiefly at the divisions and wrinkles, otherwise the dorsal surface is almost entirely of a dull purplish-red tint, paler towards both extremities and below the spiracles; plate on 2nd segment very transparent, lobes of head showing plainly through it, with brown cloud on its outer edge; flap clouded with brown, legs pale yellowish-brown; tubercles and bristles small and colourless; ventral surface and claspers paler than the dorsal, tinged with pink.

The larvæ, when removed from their galleries, crawl actively and twist about violently when irritated. They formed firm cocoons of silk and sawdust. Owing to the difficulty of keeping the food-plant fresh, but few pupæ were obtained, so I did not venture to open the cocoons to examine them. Six moths emerged in the spring of 1890.

It would be interesting to know of what species of *Pancalia*, in which genus he includes, besides *Lewwenhoekella* and *Latreillella*, *Woodiella*, *fusco-æneella*, and *fusco-cuprella*, Stephens knew the larvæ. He writes (Ill., iv, p. 275) "The larvæ feed on the inner substance of leaves, like those of the allied genera, and not on the surface." Linnæus, too, gives the following foot note to *P. Lewwenhoekella* and other species of *Tineina*:—"Subcutanæ hæ minutissimæ, quæ intra folii substantium vivunt, rodunt." (Syst. Nat., i, 897).

Fairlawn House, Worthing :  
February 25th, 1893.

*LITHOCOLLETIS CERASICOLELLA*, H.-S., A SPECIES NEW TO  
THE BRITISH FAUNA, AT DONCASTER.

BY H. H. CORBETT.

I have pleasure in adding the above species to the British list. Last autumn I collected the mines of the larvæ in the leaves of *Prunus avium*, and I have now bred a few of the imagines. One of the latter I have sent to Mr. Barrett, who confirms my opinion that it is undoubtedly *Lith. cerasicolella*, H.-S.

Appended is a description of the mine, the larva, and the imago :

*The mine* is elongate, and placed between the lateral veins of the leaf of *P. avium*, reaching from near the mid-rib towards the margin.

*The larva* is pale yellow; second segment orange-yellow. Head dark brown or black. Legs grey.

*The imago* belongs to the *pomifoliella* group, and is very like *spinicolella*, but the following points serve to distinguish it from that species. Colour more orange-red. The first dorsal streak is more gradually curved, and its apex does not point

in a line continuous with the basal line. The third dorsal streak is very small, and never joined to the third costal streak. The third and fourth costal streaks are united by some white scales above the black subapical spot.

19, Hallgate, Doncaster :  
March 10th, 1893.

## JAPANESE COLEOPTERA—TWO NEW SPECIES.

BY G. LEWIS, F.L.S.

Since the Memoirs by Herr E. Reitter on the *Nitidulidæ* and *Cucujidæ* ("Die Nitiduliden Japans" [Wien. ent. Zeit., iii, iv], "Verzeichniss der Cucujiden Japans mit Beschreibungen neuer Arten" [Wien. ent. Zeit., viii]), were published, I have found in my collection a new species in each Family, of which the following are descriptions :—

### RHYZOPHAGUS NOBILIS, n. sp.

*Cylindricus, parum elongatus, niger nitidus, punctulatus; pedibus valde robustis antennisque ferrugineis, oculis prominentibus; thorace sparsim punctulato ante scutellum longitudinaliter valide impresso; elytris striato-punctatis.* Long., 4 mm.

Head sparsely punctulate, punctures largest at base and sides, lightly impressed on each side from behind the mandibles to its base, eyes large and rather prominent; thorax more sparsely punctulate, punctures slightly oblong, in front of the scutellum is a wide and conspicuous impression beginning in the centre of the thorax and continuing near to the base; elytra striate-punctate, the sutural stria widening out before and behind; legs very robust, the antennæ reddish.

This is the sixth species of the genus now known from Japan, and in facies is not unlike *Pityophagus basalis*, Reitter, especially in the form of the femora, tibiae and tarsi. The tarsi are relatively as long again as in *R. japonicus*, Reitter.

*Hab.* : Kashiwagi in Karachi; June 28th, 1881.

### ANCISTRIA REITERI, n. sp.

*Elongata, cylindrica, nigra sat nitida, tarsis piceis; thorace punctato Postice haud constricto; elytris tenue punctato-striatis.* Long.,  $4\frac{1}{2}$  mm.

Elongate cylindrical, black, somewhat shining, tarsi and the 2nd and 3rd joints of the antennæ piceous; the head rather sparsely punctulate with a median furrow the entire length, and two short curved furrows between the antennæ; the thorax very slightly narrowed from behind the middle; the elytra finely punctate-striate, interstices lightly and transversely rugose; tibial spur rather stout, and as long as the 1st and half of the 2nd joint of the tarsus.

This species is somewhat similar to *A. apicalis*, Reitter, but it is smaller, head shorter, thorax slightly narrowed, not constricted behind and the elytra are wholly black.

*Hab.* : Yuyama in Higo.

Folkestone : March 1st, 1893.

ON THE PREPARATORY STATES OF *DIPLECTRONA FELIX*,  
McLACH.

BY KENNETH J. MORTON, F.E.S.

This very lively and interesting little caddis-fly occurs sparingly in one of our warmer glens. I had long held the idea that a *Hydropsyche*-like larva, which lives in springs and trickling streams along with such larvæ as those of *Crunaccia irrorata*, *Beræa*, &c., was that of *Diplectrona*, but not until last summer was this proved by the rearing of the imago. As the preparatory states have not hitherto been noticed, it may be worth while putting on record a few notes about them, especially as they seem to throw some light on the alliances of the genus.

The head of the larva is a very short-oval, almost as broad as long, depressed, thickly beset with short spinous hairs, with a few longer hairs in front; clypeus large; under piece very small. Labrum narrowly transverse, heavily fringed at the sides. Mandibles strong, deeply dentate, with a number of hairs on the back. Maxillæ armed with spines, ciliated inwardly; palpi 4-jointed, tapering. Colour of head brown; eyes in a yellowish space.

The thoracic segments are all more or less chitinous, quadrate, not differing greatly in size, prothorax smallest, angles moderately sharply defined, hind angles slightly rounded. The legs are strong, femora of fore-legs dilated; the second and third pairs each of slightly greater length than the pair preceding. Prothorax and mesothorax brown, bordered with black; metathorax paler, with black margins.

The segments of the abdomen increase gradually in size to about the 4th, then fall away equally gradually to the 8th; the 9th segment is small. The retractile anal filaments are five in number. The anal limbs are long, with a pencil of hairs on the inner side of the apex, and a strong, simple claw placed inferiorly. Tracheal branchiæ in large branched fascicles occur on the meso- and metasterna, and on the sterna of the first six abdominal segments; mesothorax apparently with two fascicles only, the other segments each with four arranged in two series, the outer (posterior) row the larger, each fascicle arising from two semi-independent bases. In addition, segments three to seven of abdomen have each on the lateral region two or three branchia-like processes.

The materials for the nymph state are unfortunately very limited, only the cast-off slough of the single bred example of the insect. This skin, however, shows very well that the characters of *Hydropsyche* which the larva has, are likewise a feature in the later state. The mandibles are broad at the base, elongate, with four and five apical teeth respectively, thus much as in *Hydropsyche*; and the posterior abdominal appendages are also similar to what prevails in that genus. The large branchia-like lateral appendages of the abdomen are also common to both genera. True fasciculated tracheal branchiæ exist, but their distribution and form are a little uncertain from the material in hand. Nor can the formula of the dorsal hooks be safely given from the single nymph-skin.

The economy and habitations of the larva seem to be of the type prevailing in *Hydropsyche*.

The principal differences between the larvæ and nymph of *Hydropsyche* and those of *Philopotamus* and *Wormaldia*, according to present information, may be tabulated thus:—

I. HYDROPSYCHE.	II. PHILOPOTAMUS AND WORMALDIA.
<i>Larva.</i>	<i>Larva.</i>
Head short; dark in colour.	Head more elongate; clear reddish or orange.
Labrum more or less chitinous above.	Labrum membranous, scarcely chitinous at all.
Thoracic segments all more or less chitinous and darkly coloured.	Only prothorax chitinous, same colour as head.
Abdomen greyish, or dirty white.	Abdomen (with mesothorax and meta-thorax) very pale yellow or white.
Tracheal branchiæ much developed.	No external respiratory appendages.
<i>Nymph.</i>	<i>Nymph.</i>
Large lateral branchia-like processes present on abdomen.	Such processes absent.
Tracheal branchiæ much developed.	No external respiratory appendages.

In all the above, and in other respects, *Diplectrona* agrees with Section I, rather than with II. For that reason, and taking into consideration the absence of ocelli in the imago, I am inclined to think that *Diplectrona* has more in common with *Hydropsyche* than with its present associates, *Philopotamus* and *Wormaldia*, and that it should be transferred either to the Section of *Hydropsyche*, or, perhaps better, to a separate Section immediately following. Assuming the early conditions of *Arctopsyche* to be more or less similar, by the removal of that genus and *Diplectrona*, the Section of *Philopotamus* will be rendered more homogeneous, containing as it will a group of active larvæ entirely naked as regards external respiratory filaments. The larvæ of *Dolophilus*, *Cyrnus*, and *Neureclipsis* are not known to me, but I do not think the first will differ greatly from *Philopotamus* and *Wormaldia*, and the last two from *Plectrocnemia*, *Polycentropus*, and *Holocentropus*, larvæ of all of which five genera I have seen and determined.

#### EXPLANATION OF PLATE I, FIGURES ALL ENLARGED.

##### LARVA.

1. Mandible from above (left). 2. same (right). 3. Mandible from beneath (right). 4. same (left).
5. Labrum.
6. Labium and maxilla (retracted). 7. same (exserted), more enlarged.
8. Anterior leg.
9. Anal limbs.

## NYMPH.

10. Mandibles from beneath (of one, only apex shown).
11. Apex of abdomen from beneath.
12. One of the appendages, more enlarged, from above.

Carlisle, N.B.: *January*, 1893.

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*Nothochrysa capitata*, *Limnophilus fuscicornis*, &c., in East Yorkshire.—On July 2nd last, in company with Mr. G. C. Dennis, of York, I had a few hours' enjoyable collecting at Castle Howard. At rest on a fir trunk in the wood I found a fine *Nothochrysa capitata*, of which species I have also two other Yorkshire specimens in my collection, one of them from Bishop's Wood, near Selby, on May 26th, 1890, the other from Green Farm Wood, Doncaster, on June 6th, 1892. Among the grass at the foot of an oak tree on the river side a number of *Limnophilus fuscicornis* had congregated, some eight or ten specimens (including both sexes) being boxed from it, whereas, from adjoining trees with apparently exactly similar conditions, only occasional specimens occurred: with the *fuscicornis* were several other species, including *Phryganea grandis*, *Stenophylax stellatus*, *Limnophilus extricatus*, *L. hirsutus*, &c. On the river, *Calopteryx splendens* was common, and *Leptocerus cinereus*; whilst beating in the wood produced *Chrysopa alba* in swarms, *C. tenella* and *C. vittata*. Of *Lepidoptera*, a few *Asthena Blomeri* occurred about ash trees. On the previous evening (July 1st) we sugared some palings and trees at Askham Bogs, York, to which *Limnophilus luridus* came in abundance, *Grammotaulius atomarius* plentifully, and *Limnophilus flavicornis* and *L. sparsus* fairly commonly. The *Lepidopterous* visitors included *Leucania pudorina*, very fine and evidently just out, *Acronycta leporina*, with an abundance of fine dark *Noctua c-nigrum* and other species. *Plusia festucae* occurred at flowers of *Iris pseudacorus*.—GEO. T. PORRITT, Huddersfield: *March 10th*, 1893.

[According to my experience of nearly 35 years, *Nothochrysa capitata* has latterly become decidedly more common and more wide-spread. But during the whole of that period I have not heard of the capture in this country of its ally, *N. fulviceps*. Is the latter extinct? *cf. Ent. Mo. Mag.*, 1891, p. 170.—R. McL.]

*Anosia Plexippus* off the coast of Portugal.—With reference to the statement at the Meeting of the South London Entomological Society, that only three specimens of this butterfly had been recorded from the continent of Europe, I have a specimen taken some years ago off the coast of Portugal, sixty miles from Cape St. Vincent.—GEO. A. HARKER, 100, Huskisson Street, Liverpool: *March 13th*, 1893.

*Early spring Rhopalocera on the Riviera*.—I am reliably informed that the following species have already been either seen or taken on the wing near Nice (Alpes-Maritimes), viz.:—*Pieris brassicae*, L., several seen; *Anthocharis Belia*, Cr., one seen and one taken on February 25th, locality, Cap St. Jean; *Colias Edusa*, F., one noticed at St. Maurice, to the north of Nice, on February 12th; *Lycana Argiolus*, L., an individual seen on February 16th; *Vanessa urticae*, L., one seen this morning. Going back to former seasons, I find, on referring to my diary, that *Papilio Podalirius*, L., has been seen on March 29th (1891); and I have met with

*Anthocharis cardamines*, L., and *A. euphenoides*, Stgr., both on March 28th (1890). *Polyommatus Phlaas*, L. (if I am not mistaken), I saw at the end of February, about five or six years ago, in a sheltered locality to the north of the town of Nice. *Lycæna Baton*, Bgstr., has been found on March 26th (1890), a solitary ♂; the ♀s usually appear about a fortnight later, as I have also noticed to be the case with most species of *Lepidoptera*. As regards this latter, I have always taken it on Mont Vinaigrier, near Nice, a locality, by the way, for *Deilephila Nicæa*, Prun., *Bombyx alpicola*, Stgr. (a melanic form), and other good things; also at St. Jean, where the wild thyme (*Thymus vulgaris*) grows in unkempt luxuriance.—F. BROMILOW, Nice, South France: March 5th, 1893.

*Polia nigrocincta* in North Devon.—The larva of this species has been found in some abundance in the Isle of Man, but British specimens of the moth are, we believe, extremely rare, and have occurred only in Devon and Cornwall. On the night of September 15th, 1890, we took two specimens (both females) at sugar in the neighbourhood of Ilfracombe. Mr. C. G. Barrett, who has kindly examined one of our captures, pronounces it to be rather more obscurely marked than his Isle of Man specimens.—F. A. DIXEY, Wadham College, Oxford, and G. B. LONGSTAFF, Highlands, Putney Heath, S.W.: February, 1893.

*Abraxas ulmata*.—Thorpe Wood, near Workshop, is almost purely a beech wood, but has here and there an elm and oak: *ulmata* swarms in this wood, and so do naturally the larvæ; these always prefer the elm, and a hundred may be thrashed off one branch of elm to a dozen from a whole tree of beech, in fact, the few elms are literally eaten up, while it is difficult to find a beech touched. Personally I have always associated *ulmata* with elm, as certainly in this neighbourhood it appears to be its natural food.—A. E. HALL, Sheffield: March 17th, 1893.

*Abraxas ulmata*.—Mr. Gardner speaks of elm as the ordinary food of *Abraxas ulmata*. I was rather surprised, however, to see the note in the Magazine of this month. All these years that I have been beating these great beech woods near me I have never beaten larvæ of *ulmata* from a beech tree; I have never connected *ulmata* with the beech further than that the beech wood is the natural home of the wych elm. Through all these woods there is a general sprinkling of wych elm, with here and there a spot where plenty of it grows: *ulmata* goes through the wood in the same way—sprinkled sparingly till you come to where the elm grows in groups together; here the moth is abundant at once, and both it and its larva may, in the right season, be readily beaten from the elms. May not Mr. Nash have overlooked these wych elms? They are slender, weakly growing trees in the wood, easily escaping notice among the towering beeches. It is only outside the wood that they attain any size. Sometimes, in walking through the woods with others we have met with *ulmata*. "Why, how comes it here?" my companions say, "there is no elm." I have always, however, been able to find the wych elm near at hand to account for it. Larvæ may be often seen despairingly searching for food when they are blown down by the rough autumn winds. It is a common thing for numbers of *Demas coryli* and *Halias prasinana* to be overtaken by the fall of the leaf before they have finished feeding up, and so come to a bad end.—W. HOLLAND, 111, Southampton Street, Reading: March, 1893.

*Our British Butalidæ: an appeal for help.*—The genus *Butalis*, which is particularly well represented in this part of the country, has always interested me greatly, but my investigations have shown that there is an immense and distressing amount of confusion and error existing *everywhere*, both in our standard works as well as in collections, about one or two of the species included in the British list. This (with the editors' kind permission) I hope to be able to clear away before very long, but it is an extremely difficult matter, and although I have studied the question pretty closely, the deeper one goes into it the more involved does it become, and the more deeply-seated is the mischief seen to be; but it is quite unnecessary to enter into the details or the causes of it at present. It will be sufficient to mention that, thanks to the kindness of several friends, I have been able to consult all the works, both English and foreign, in which the species are described, figured or noticed, and also to examine the splendid collections of the late Mr. H. T. Stainton and Professor Zeller, as well as those of Messrs. P. B. Mason, J. W. Douglas, W. H. B. Fletcher, and others. Just now, however, I am most anxious to see for myself Haworth's original *type specimens* of *fusco-ænea* and *fusco-cuprea*, and shall be very grateful to any one who can tell me where they are to be found, as my own efforts to trace them since the disposal of his insects at a sale many years ago have so far been in vain.

It would be a great help if any one could, in the coming season or at any future time, kindly supply me with larvæ of *fusco-ænea*, or of any species that seems ready to answer to the name *fusco-cuprea* (!), while larvæ or imagines of a most beautiful *copper coloured* insect, which represents the latter in the collection of Mr. Douglas, and is utterly distinct from the one described under that name in the "Insecta Britannica, Lep. Tin." p. 166, and in Stainton's "Manual," ii, p. 360, would be *especially* welcome. At some future date I shall have a good deal to say about these, and one or two other members of the group, including the species identified by Mr. Stainton as *laminella*, H.-S.—EUSTACE R. BANKES, The Rectory, Corfe Castle: February 24th, 1893.

P.S.—It will be as well here to draw attention to the fact that, although in Ent. Mo. Mag., xxv, the notes on *B. laminella* by Mr. W. H. B. Fletcher and myself on pp. 15 and 16 are catalogued in the "Index to General Subjects," and mine is again referred to in the list of "Larvæ of British Species described in this Volume," yet in the "Special Index," as well as in the list of "Additions to the British Insect Fauna," they are altogether ignored! and while on the subject of this volume (xxv), it may be useful to point out another serious omission which has caused me unnecessary trouble before now—on p. 91 is a note by the late Mr. Stainton on *Chrysoclista bimaculella*, and on p. 169 is a very important paper from his pen about the same insect, but although both are noticed among the "General Subjects," the "Special Index" contains no allusion to either of them!—E. R. B.

*Has Butalis dissimilella, H.-S., any claim to a place on the British list?*—Although the only correct answer to this question is "No! none whatever!" its name has unfortunately been included (either with or without a ? after it, but *quite erroneously in either case*) in all the lists of British *Lepidoptera*, whether synonymic or otherwise, that have been issued in recent years. In Ent. Mo. Mag., xiv, p. 111, there is an interesting note by Mr. E. Meyrick in reference to a single example of a



*Butalis* taken on a heath near Newbury on June 29th, 1875. Mr. Meyrick begins by stating clearly that this specimen "*remains as yet undetermined*" (the italics throughout this note are mine), and then goes on to inform us that it was returned by Mr. Stainton as "*perhaps*" *dissimilella*, H.-S., but that Professor Zeller "*declined to give any definite opinion, and seemed to think that it might be undescribed.*" How any one could have been misled by these very plain statements is more than I can understand, and I well remember my astonishment when I first noticed that, in the Index to Ent. Mo. Mag., xiv, *Butalis dissimilella* was definitely included (without even a ? after the name) in the list of "Additions to the British Insect Fauna brought forward in this Volume!" *Hinc illæ lacrymæ!* If I am right in thinking that nothing fresh has transpired about the identity of Mr. Meyrick's insect, his note still refers to "*A Butalis new to Britain,*" and his statement that that *Butalis* "*remains as yet undetermined,*" is as true now as it was when originally made in 1877.—IN.

*Carabidæ in the vicinity of Oxford.*—During the past year specimens of the following *Carabidæ* have been captured in the vicinity of Oxford, mostly by myself. *Cychnus rostratus*—occasionally, under dead leaves or in old stumps. *Calosoma inquisitor*—two examples, in Bagley Wood. *Clivina collaris*—one specimen, in dung. *Dyschirius æneus*—two examples, in a sand-pit at Hinksey; *D. globosus*—abundant. *Dromius agilis*—common. *Brachinus crepitans*—Cowley, three specimens. *Lebia chlorocephala*—one specimen, under a stone at Wheatley. *Panagæus cruz-major*—several examples at Cowley. *Badister unipustulatus*—occasionally, in the sandy banks of a ditch at Cowley; *B. bipustulatus*—on the hills at Shotover, Wheatley, &c. *Chlenius nigricornis*—in flood refuse, &c., Mesopotamia, near Oxford. *Oodes helopioides*—with the preceding, not uncommon. *Bradycellus distinctus*, *harpalinus*, &c.—Cowley. *Harpalas rubripes*—Oxford; *H. latus*—Bagley Wood. *Stomis pumicatus*—Oxford, rather common, amongst dead leaves, &c. *Pterostichus oblongo-punctatus*—Bagley Wood and Marston, sparingly; *P. niger*—Oxford, plentiful in flood refuse; *P. minor*—Oxford, common; *P. picimanus*—Cowley, Bagley, and Forest Hill, a few specimens. *Amara fulva*—Cowley, under stones and by evening sweeping; *A. aulica*, *ovata*, *lunicollis*, and *tibialis*—Oxford. *Taphria nivalis*—under stones and by evening sweeping, Oxford. *Pristonychus terriicola*—in an outhouse, and also in a farmyard at Cowley. *Sphodrus leucophthalmus*—two specimens, in an old and long disused cellar in the city. *Anchomenus livens*—four specimens, taken out of an old log in some flood refuse, in January, 1892, Oxford; *A. sexpunctatus*, *atratus*, *viduus*, *micans*, *gracilis*, *piceus*, *puellus*, &c.—in old stumps, &c., about the river; *A. Thoreyi*—several specimens along the Cherwell, under the bark of old willow trees. *Bembidium rufescens* and *quinquestriatum*—under stones, in the city; *B. Mannerheimi*, *æneum*, &c.—in accumulated flood refuse at the mouth of the Cherwell; *B. assimile* and *Clarki*—Otmoor, under bark of willow trees; *B. articulatum*—sometimes in numbers in Mesopotamia; *B. gilvipes*—sparingly in the Otmoor district; *B. tibiale*—Cowley, in a sandy ditch in company with *B. atrocaruleum*, the latter in abundance; *B. decorum*—sparingly in flood refuse, Oxford; *B. lunatum*—one specimen in flood refuse, Mesopotamia; *B. saxatile*, *bruzellense*, and *fluviale*—in flood refuse; *B. punctulatum*—sparingly, and *B. flammulatum*, commonly, on Port Meadow. *Tachypus flavipes*—

in a sandy ditch, Cowley. *Trechus discus*—one specimen, under roots of plants at Wheatley; *T. micros*—sparingly, in several localities. *Patrobis excavatus*—one specimen, by the side of a brook in Bagley Wood.—JOHN W. SHIFF, University Museum, Oxford: *January 29th*, 1893.

*Bembidium nigricorne*, Gyll., &c., at Woking.—During the last few days I have taken *Bembidium nigricorne*, Gyll., and *Amara inflata*, Duftschm., not uncommonly in this neighbourhood. They occur in sand pits and in bare sandy places at the roots of heath. Both have previously been recorded by me from Chobham,\* not many miles away. A very fresh example of *Cleonus nebulosus*, Linn., was found in a sand pit here on Sept. 24th last.—GEO. C. CHAMPION, Horsell, Woking: *March 6th*, 1893.

*British Aculeate Hymenoptera*.—Messrs. L. Reeve and Co. have in preparation a new work on the *British Aculeate Hymenoptera* from the pen of Mr. Edward Saunders, F.L.S., uniform with the same author's work on the *Hemiptera-Heteroptera* just completed.

*Bombus pomorum* and *lapidarius*.—In November, 1889, I recorded in this Magazine a capture by myself at Beachy Head of *Bombus pomorum* ♀. Last year at Hastings I found an insect, which at first I believed to be another example of that species. It was less brightly coloured than the Beachy Head specimen, but in both the thorax was edged with a ring of pale hairs, and the black and red on the abdomen were not clearly defined, but shaded gradually into each other.

The Beachy Head specimen had been named *pomorum* by Mr. Edward Saunders, and as I happened to be visiting him when I left Hastings, I naturally showed him with some exultation what I supposed to be a second example of that extremely rare species. However, on closely comparing it with his continental specimens of *pomorum*, it became clear to both of us that though the pubescence of my insect was "right" for *pomorum*, its structure was "wrong." The head and the intermediate metatarsi proved that it could only be a *lapidarius*; and I have described it accordingly as a curious variety of that species in the January number of this year's Ent. Mo. Mag.

On returning to Rugby I looked, with some apprehension, once more at my Beachy Head *Bombus*, and found, to my dismay, that it had the blunt-apexed metatarsus of *lapidarius*. The general aspect of the creature, however, was so exceedingly unlike a normal *lapidarius* (ornamented, as it was, with bright brown hairs fringing the thorax, and with an abdomen which, in some lights, appeared to be entirely brownish-red), that, though I could no longer flatter myself I had taken a British *pomorum*, I began to wonder whether I could have lighted on a wholly new species. That vague hope too, however, I have had to surrender. I have again shown the two specimens to Mr. Saunders, and, seeing them together, he pronounces them identical, and both *lapidarius*; and Professor Perez, who has also kindly examined them, takes unhesitatingly the same view, but adds that their coloration differs from that of any variety of *lapidarius* that he has seen. As to their strange tendency to red, he says, "Je ne l'avais jamais constatée, et il m'a fallu regarder de très près les *lapidarius* de ma collection pour retrouver sur un petit nombre une faible décoloration roussâtre de quelques poils de l'écusson et du dos de l'abdomen."—F. D. MORICE, Rugby: *February*, 1893.

\* Ent. Mo. Mag., xv, p. 203 (1878).

*Early appearance of Andrena Clarkella.*—Whilst walking on the road between here and Bearstead, on February 19th, I was somewhat surprised to see *Andrena Clarkella* out in some numbers. They were very active and not easy to catch, as I had no net; however, I secured two ♀ and eleven ♂ specimens. I did not see *Anthophora pilipes* or *Andrena Gwynana*, though both are found at the same place. The day was very hot, though the weather changed the next morning. I am told that *Apis mellifica* was out on the same day. The earliest date at which I had previously taken *A. Clarkella* was March 1st, 1891.—G. E. FRISBY, 27, Hedley Street, Maidstone: March 1st, 1893.

*Peculiar economy of a species of Eumenes.*—The last part of "Insect Life" (Vol. v, No. 2, p. 106) contains an article by Mr. E. B. Southwick on the "Parsnip Web-worm" (*Depressaria heracliana*, De Geer), in which is the following account of the action of the "Potter Wasp" (*Eumenes fraterna*) in obtaining the larvæ of the moth, which live in webs on the umbels of the wild parsnip, and on which it preys:—

"One of these wasps would alight on the umbel in which a web was situated, and would begin to peer into it, first at one end and then at the other, all the time getting more and more excited. On discovering the worm within it would commence to run its abdomen into the end of the web, with its head directed towards the opposite end, trying in this way to eject the occupant, and every now and then darting at the orifice as the worm would approach it. In this way it would work for a long time, first at one end and then at the other, no doubt each time thrusting out its sting. In this way it continued packing the silken cell at each end until it became too short to longer cover the larva and keep out of reach of sting and jaws, and it was forced to show itself, when the mandibles of the wasp sank deep into it, and it was dragged forth from its burrow. Sometimes this was done with great difficulty, but by repeated stings and jerks it would finally be dislodged, when the wasp would again sting it, and then fly away with it to its cell as food for its young."—Eds.

*Wasps and wasp-nest beetles in Scotland.*—The sandy district in the north of Morayshire, near Forres, appears to be well off for species of the genus *Vespa*. The commonest wasp there last autumn was *V. vulgaris*, but in regard to the number of nests, *V. norvegica (britannica)* runs it close in places. This wasp builds but a few feet above the ground in hedges and shrubberies, and also on the lower boughs of trees; it seems to prefer the neighbourhood of dwellings, and an immense number of nests accordingly get destroyed early in the season. The nests vary much in size; I have a large one about eight inches in diameter. This nest, which was in a privet hedge, was remarkable for the fact that when taken it contained, as far as I can make out, only workers and males, the latter in very great numbers, besides a plentiful supply of earwigs. I kept it for some time indoors, in the hope of breeding out a queen or two, but failed altogether, though males, workers and earwigs continued to appear; in fact, I never got a queen of this species. *Vespa silvestris* builds, I believe, in the high fir and other trees, chiefly out of reach. I took a couple of workers of *silvestris*, but I put off taking the tree nests till too late. The tree wasps being less protected from cold than the other species, break up their nests much earlier than

the ground species, and a heavy storm fairly early in September completed the destruction. *Vespa rufa* occurs commonly on the sandhills. I took one beautiful little nest, about three inches in diameter. This species appears to make little effort to protect its nest. When I took my nest by daylight the wasps that escaped flew away without attempting to use their stings. *V. rufa* was over earlier than *vulgaris*, probably the small nests afford less protection against the cold. In a nest of *Vespa vulgaris* taken by me I found *Quedius puncticollis* (two specimens) and *Cryptophagus pubescens*. *Megacronus analis* also occurred a foot or two from the nest, and I believe had been driven out of the nest by the sulphur fumes. This nest when kept produced *Lathridius minutus* and *Cryptophagus pubescens* in some numbers, though most of the larvæ of this beetle were killed by the cold in January.—A. J. CHITTY, 33, Queen's Gate Gardens, S.W. : February, 1893.

*Hemiptera, Heteroptera and Homoptera collected in Perth District, 1892.*—During the past summer of 1892 I collected in this district, within a radius of ten miles of the "Fair City," no less than 150 kinds of *Hemiptera, Heteroptera* and *Homoptera*, and I beg to record the occurrence of the following species, which may prove of interest to your readers :—

*Hebrus ruficeps*, Thoms., common, but local.

*Gerris Costa*, H.-S., one specimen. *G. odontogaster*, Zett., common, local.

*Ploiaria vagabunda*, Linn., a few specimens off Scotch fir.

*Salda saltatoria*, Linn., var. *vestita*, D. & S., one specimen, Tay Shingles. *S. c-album*, Fieb., one specimen. *S. scotica*, Curt., common.

*Cryptostemma alienum*, H.-S., Tay Shingles, local.

*Elatophilus nigricornis*, Zett., three specimens, widely apart.

*Anthocoris confusus*, Reut., a few specimens, widely distributed. *A. nemoralis*, Fab., common and generally distributed. *A. sarothamni*, D. & S.

*Phytocoris tilia*, Fab., a few specimens, local. *P. longipennis*, Flor., one specimen. *P. dimidiatus*, Kb., fairly common. *P. pini*, Kb., very abundant locally.

*Calocoris sexguttatus*, Fab., locally common. *C. striatus*, Linn., one specimen off broom by beating.

*Dichroscytus rufipennis*, Fall., widely distributed, in one locality abundant.

*Plesiocoris rugicollis*, Fall., well distributed and fairly common.

*Lygus lucorum*, Mey., two specimens. var. *nigronasutus*, one example.

*Paciloscytus unifasciatus*, Fab., three specimens.

*Bothynotus pilosus*, Boh., one specimen, in Scotch fir plantation by beating.

*Labops saltator*, Hahn., one specimen.

*Dicyphus stachydis*, Reut., a few examples.

*Orthotylus adenocarpi*, Perr., one specimen.

*Macrocoleus molliculus*, Fall., two specimens.

*Plesiodesma pinetellum*, Zett., one specimen.

*Psallus lepidus*, Fieb., common and widely distributed. *P. Fallenii*, Reut., a few specimens, widely distributed. *P. varians*, H.-S., very common and very widely distributed. *P. diminutus*, Kb., common.

*Asciodesma obsoletum*, D. & S., two specimens.

*Corixa semistriata*, Fieb., one specimen. *C. venusta*, D. & S., fairly common, but local. *C. praeusta*, Fieb., common, local ; var. *Wollastoni*, D. & S., one specimen.

*Sigara minutissima*, Linn., common, but local.

*Liburnia difficilis*, Edw., two specimens. *L. discreta*, Edw., one example. *L. denticauda*, Boh., a few specimens. *L. limbata*, Fab., four specimens.

*Philenus exclamationis*, Thunb., a few specimens by sweeping. *Ph. lineatus*, Linn., fairly common and very widely distributed.

*Bythoscopus flavicollis*, Linn., one of our commonest and most widely distributed forms.

*Acocephalus bifasciatus*, Linn., one specimen.

*Doratura stylata*, Boh., one specimen.

*Athysanus brevipennis*, Burm., fairly common and very widely distributed.

*Deltocephalus abdominalis*, Fab., common and distributed throughout.

*Limotettix quadrinotata*, Fab., a few specimens.

*Gnathodus punctatus*, Thunb., one specimen.

*Dicraneura variata*, Hardy, two specimens.

*Eupteryx concinna*, Germ., a few specimens, widely distributed.

*Typhlocyba searpunctata*, Fall., one specimen; var. *decempunctata*, Fall., one specimen.

There can be no doubt that this district will yet yield many interesting forms, as some of the best localities (such as Birnam Hill, Logiealmone, and Moncreiffe) have not been visited during the past season. The whole of the species have been kindly determined by Mr. Edward Saunders.—T. M. MCGREGOR, 353, West High Street, Perth: January, 1893.

*Shetland Diptera*.—The following species were collected by myself in June, 1890. Although there are no rarities in the list, still it may be interesting as being the first for that northern group of islands:—*Erioptera nodulosa*, *E. lineata*, *E. ochracea*, *E. trivialis*, *Molophilus obscurus*, *Limnophila Meigeni*, *Pedicia rivosia*, *Tipula ruftna*, *T. fuscipennis*, *T. oleracea*, *T. longicornis*, *Chironomus dolens*, *C. festinus*, *C. pallens*, *C. histrio*, *Tanypus ferrugineicollis*, *Ceratopogon femoratus*, *Culex ciliaris*, *Dilophus femoratus*, *Empis stercorea*, *Hemerodromia precatoria*, *H. monostigma*, *Rhyphus fasciatus*, *Stomoxys stimulans*, *Spilogaster obscuripes*, *S. duplicata*, *S. quadrum*, *Hyetodesia longipes*, *H. incana*, *Onodontha dentipes*, *Hylemyia variata*, *Homalomyia canicularis*, *H. scularis*, *Canosia triangula*, *C. scrupulosa*, *Mycetophaga fungorum*, *Calopa frigida*, *C. parvula*, *Borborus equinus*, *Scatophaga squalida*, *S. stercoraria*, *S. litorea*, *Rhingia campestris*, *Chilosia flavimana*, *Chrysogaster metallina*, *Cordylura spinimana*, *Platychirus manicatus*, *P. peltatus*, *Cyrtoma spuria*, *Dolichopus festinus*, *Porphyrops pallipes*, *Eristalis nemorum*, *E. intricarius*, *E. arbustorum*.—C. W. DALE, Glanvilles Wootton: January 10th, 1893.

*Mould in Cabinets*.—In reply to Mr. Maskell's question as to how he can keep fungus from his cabinets, I am glad to be able to give the following information. Get some small cheap Turkey Sponges, as free from large holes as possible, and cut them up into cubes of from  $\frac{1}{4}$  to 1 inch each. Take some long stout pins, and putting two through one of the cubes of sponge, suspend thus the latter in the drawer so that it touches nothing but the pins. Then get some of Calvert's No. 5 carbolic acid (a gallon costing, I think, 2s. 6d. will last for years) and a glass pipette; lift the carbolic by the pipette, and put as much on the sponge as this will hold without dripping. This will completely prevent the increase of fungus; and if the

carbolic be renewed in two or three months, and if the drawers are pretty tightly closed, will kill what may be therein. The carbolic should not be allowed to get on the insects, but the vapour will be found to help to keep them clean and bright by preventing all forms of decomposition. From many years' experience by myself and others (by Mr. Blackburn in the damp climate of the Hawaiian Islands), I can recommend this method as the most effectual in preserving insect collections. The tissues of the insects in the drawers become after a time, I believe, slightly carbolized, and then mites and mould will not attack them. I use it in all my boxes and drawers, and consider it essential to the preservation of collections containing very large insects by keeping the atmosphere inside the drawers quite disinfected.—D. SHARP, Cambridge: *February 28th*, 1893.

*Pith*.—Having seen some remarks on pith for mounting insects on, I may add that insect boxes are always lined with aloe pith out here, but it is very unsatisfactory, being very liable to be attacked by a minute beetle, and some portions of it are so hard that no fine pin will go in at all, and on the other hand, large pins very soon work loose.—P. E. RADLEY, Marguerita, Maturatta, Ceylon: *Feb. 20th*, 1893.

[The attacks of the beetle might be both cured and prevented by saturating the pith with a solution of arsenic in pure alcohol; the latter soon evaporates, but the suspended arsenic remains.—EDS.].

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *February 20th*, 1893.—Mr. G. T. BETHUNE-BAKER, Vice-President, in the Chair.

The following were exhibited:—By Mr. R. C. Bradley, a long series of the genus *Conops*, taken at Wyre Forest last year, and including the following: *flavipes*, *quadrifasciatus*, *cerieformis*, and *strigatus* (two only). By Mr. Baker, a box containing a number of rare and local insects, mainly continental examples of British species, and including *Plusia moneta*, *Arctia lubricipeda*, var. *Zalima*, &c., also the pale Irish male of *Arctia mendica*, &c. By Mr. G. W. Wynn, a number of *Noctuæ*, bred from hibernating larvæ found last spring at Wyre Forest and Marston Green. By Mr. W. Harrison, living larvæ of *Sesia tipuliformis*. Mr. P. W. Abbott read two short papers, illustrated by specimens: one about his work at Wyre during 1892; he had been working new ground, and turned up a lot of new things, including *Cymatophora fluctuosa* and *duplaris*, *Asthna Blomeri*, &c.; the other paper described a journey to Freshwater in August for *Colias Edusa*.—COLBEAN J. WAINWRIGHT, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *March 13th*, 1893.—Mr. S. J. CAPPER, F.L.S., F.E.S., President, in the Chair.

Mr. W. E. Sharp read a paper, entitled, "Notes on some Irish and other *Coleoptera*," with a list of additions to the local fauna. Mr. Willoughby Gardner, F.R.G.S., read a paper, entitled, "Notes on some of the rarer Aculeate *Hymenoptera* of our District." After presenting a copy of his "*Hymenoptera Aculeata* of Lancashire and Cheshire" to the Society's library, he noticed several species rare to the district. Both papers were well illustrated by specimens. The President exhibited

specimens of *Bombyx quercus*, including some fine varieties. Mr. Green, a collection of local *Hymenoptera*. Mr. Watson, *Papilio Machaon* from England, Northern India, Japan, &c., and its huge variety, *Hippocrates*, from North-East China. Mr. Jones, on behalf of Mr. Bowler, a specimen of *Sphinx convolvuli*, captured at Broadgreen.—F. N. PIERCE, *Hon. Secretary*, 143, Smithdown Lane, Liverpool.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:  
February 23rd, 1893.—J. JENNER WEIR, Esq., F.L.S., President, in the Chair.

Mr. S. Edwards exhibited exotic *Lepidoptera* (butterflies), illustrative of mimicry. Mr. South, series of *Cerostoma radiatella*, Don., and *C. costella*, Fab., and remarked on the number of varieties of *radiatella*. Mr. Auld, a box of *Coleoptera* collected near the Cape of Good Hope. Mr. Barrett drew attention to a method of transferring the scales of the wings of *Lepidoptera* to paper, as exemplified by a sample from Herr Aug. Hoffmann. Mr. R. Adkin exhibited a short series of *Spilosoma mendica*, Clerck., bred from larvæ found in Aberdeenshire, the males being of a brownish colour. Mr. Tugwell referred to the fact that specimens of the male *S. mendica* from Barnsley were light, whereas those from Huddersfield were dark forms, as exhibited recently by Mr. G. T. Porritt. Mr. Billups, insects from a mission station on the Demerara River, British Guiana. Mr. J. Weir exhibited specimens of *Euphonia* butterflies of three distinct groups, viz., *Crastia Core*, *Narmada coreoides*, and *Pademna Kollari*, and read an interesting paper on "Isochromatous *Lepidoptera*." Mr. R. Adkin also exhibited a series of *Diurnea fagella*, Fb., from Lewisham, and mentioned several species, notably *Eupithecia rectangulata*, L., and *Miana strigilis*, Clerck, which had assumed a marked tendency towards melanism in the London District of late years, agreeing with Mr. Mansbridge that climatic conditions did not appear to account for the change. A discussion ensued, in which Messrs. Barrett, McArthur, Tutt, Mr. Robson, of Hartlepool, as a visitor, and others took part. The President then called on Mr. Robson, who exhibited a short series of *S. mendica*, Clerck, of which one specimen, a female bred at Hartlepool, was of a distinct cream colour. Mr. Robson stated that this species was common in Northumberland and Durham, along the coast, and that the male insect occasionally varied to a colour intermediate between the English and Irish forms. A discussion followed.

March 9th, 1893.—The President in the Chair.

The President exhibited specimens of *Diurnea fagella*, Fb., taken fifty years ago near London, and Mr. R. Adkin remarked that they were as light as any now taken in the metropolitan district. Mr. Jenner Weir also noted the capture of *Vanessa Io*, L., by his brother on February 19th, near Sevenoaks, and that he had seen *Gonepteryx rhamni*, L., on the wing on March 9th. Mr. Fenn reported *G. rhamni* as having been common near Leatherhead at the end of February. A discussion arose as to the occurrence of *Polyommatus dispar*, Haw., at Camberwell fifty years ago, and Mr. Fenn and Mr. Tugwell both mentioned Kentish specimens previous to 1848. Mr. R. Adkin exhibited for Mr. C. H. Watson a specimen of *Pieris brassicae*, L., from Streatham, which approached very nearly *Pieris cheiranthi*, Hb., of the Canary Islands. Mr. G. B. Routledge exhibited a small collection of butterflies from Algiers, Hyères, and Switzerland. Mr. R. Adkin exhibited a series of *Vanessa*.

*urticæ*, L., bred during 1892 in Sutherlandshire, N.B., which were generally dark in colour, and with markings well defined. Mr. Sauzé, a small collection of *Ichneumonidæ*, captured in the perfect state. Mr. Jenner Weir exhibited specimens of a group of the *Nymphaliniæ* from the African region, mimicking others from the groups *Danainæ* and *Acræinæ*. An interesting discussion ensued. The question as to the excursions of the Society during the ensuing summer was put to the meeting, and it was decided to discuss the matter at the meeting of April 13th, before coming to a final decision. It is hoped that a large attendance may result on April 13th, more especially of the younger members, for whose benefit the excursions have in past seasons been arranged.—F. W. HAWES and H. WILLIAMS, *Hon. Secretaries*.

ENTOMOLOGICAL SOCIETY OF LONDON: *February 22nd, 1893*.—HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

Mr. Kenneth J. Morton, of Glenview Cottage, Carlisle, N. B.; Herr A. F. Nonfried, of Rakonitz, Bohemia; and Mr. Charles B. Taylor, of Rae Town, Kingston, Jamaica, were elected Fellows of the Society.

Mr. F. J. Hanbury exhibited, on behalf of Mr. Percy H. Russ, of Sligo, several long and very variable series of *Agrotis tritici*, *A. valligera*, and *A. cursoria*, together with Irish forms of many other species, some of which were believed to be new to Ireland. Mr. W. H. B. Fletcher and Mr. J. W. Tutt made some remarks on the species.

Mr. R. W. Lloyd exhibited specimens of a species of *Acarus* found in New Zealand wheat. He stated that Mr. A. D. Michael had examined the specimens, and pronounced them to belong to *Tyroglyphus farinae*, a species which had been known for over a hundred years as a destroyer of corn, and was only too abundant all over Europe, and probably over the temperate regions of the world.

Dr. T. A. Chapman exhibited, by means of the oxy-hydrogen lantern, photographs of the larva of *Nemeobius Lucina* in its first stage, showing the conjoined dorsal tubercles, each carrying two hairs, which are remarkable in being divided into two branches. For comparison he also showed, by means of the lantern, drawings of the young larva of *Papilio Ajax*, after Scudder, and of a portion of a segment of *Smerinthus populi*, as the only instances known to him of similar dichotomous hairs in Lepidopterous larvæ. Mr. E. B. Poulton pointed out that he had described the forked hairs of *Smerinthus* in the Entomological Society's "Transactions" for 1885, and that such hairs were even better developed in the genus *Hemaris*, originally described, as he believed, by Curtis. Mr. Poulton also said that he had noticed similar forked hairs covering the newly hatched larvæ of *Geometra papilionaria*.

Mr. Poulton exhibited, and made remarks on, a number of cocoons of *Halias prasinana*, in order to show the changes of colour produced in them by their surroundings; he also exhibited the coloured background employed by him in his recent experiments on the colours of larvæ and pupæ, and illustrated his remarks by numerous drawings on the black-board.

Dr. Chapman read a paper—which was illustrated by the oxy-hydrogen lantern—entitled, "On some neglected Points in the Structure of the Pupa of Heterocerous *Lepidoptera*, and their Probable Value in Classification." A discussion ensued, in which Mr. Elwes, Mr. Poulton, Mr. Champion, and Mr. Merrifield took part.



Dr. F. A. Dixey communicated a paper, entitled, "On the Phylogenetic Significance of the Variations produced by Differences of Temperature on *Vanessa Atalanta*." The President, Mr. Merrifield, Mr. Poulton, Dr. Chapman, and Mr. Tutt took part in the discussion which ensued.

*March 8th*, 1893.—The President in the Chair.

Mr. Frank E. Beddard, M.A., F.R.S., of the Zoological Gardens, Regent's Park; Monsieur Edouard Brabant, of Château de Morenchies, Cambrai, France; Mr. Frank Bromilow, of Avalon, St. Maurice, Nice; Mr. Henry Powys Greenwood, F.L.S., of Harnham Cliff, near Salisbury; Mr. Frederick Michael Halford, of 6, Pembroke Place; Lieutenant-Colonel Leonard Howard L. Irby, F.L.S., of 41, Cornwall Terrace, Regent's Park; Mr. Bertram S. Ogle, of Steeple Acton; Herr Wilhelm Paulcke, of 33, Langstrasse, Baden-Baden; Mr. Louis B. Prout, of 12, Greenwood Road, Dalston; and Captain Savile G. Reid, of Foyle House, Alton, were elected Fellows of the Society; and Herr Pastor Wallengren, of Farhult, bei Höganas, Sweden, and Herr Hofrath Dr. Carl Brunner Von Wattenwyl, of Vienna, were elected Honorary Fellows of the Society.

Dr. D. Sharp exhibited a specimen of a fine *Enoplotrupes*, from Siam, which was believed to be new, and which he thought Mr. Lewis intended to describe under the name of *E. principalis*. The insect has great power of making a noise, and the female seemed in this respect to surpass the male.

Mr. W. F. H. Blandford said he wished to supplement the remarks which he made at the meeting of the Society on the 8th of February last, on the larva of *Rhynchophorus*. He stated that he had since found that only the first seven pairs of abdominal stigmata were rudimentary. The posterior pair were well developed and displaced on to the dorsum of their segment, which was thickly chitinised, and bore a deep depression, on the margins of which the spiracles were situated. He suggested that the absence of lateral spiracles was, perhaps, correlated with the wetness of the larval burrows. Dr. Sharp and Mr. Champion made some remarks on the subject.

Mr. W. H. B. Fletcher exhibited a long series of bred *Zygana lonicera* and *Z. trifolii*, hybrids of the first generation, and hybrids of the second generation between *Z. trifolii*, hybrid, and *Z. lonicera*, hybrid (cf. Ent. Mo. Mag., ante, pp. 53, 54).

Mr. F. W. Frohawk exhibited a bred series of *Vanessa Atalanta*, showing the amount of variation in the red band on the fore-wings of the female. In seven specimens there was a white spot on this band, and in ten specimens it was absent.

Mr. Elwes exhibited a large number of specimens of *Chrysophanus Phleas*, from various parts of Europe, Asia, and North America, with the object of showing that the species is scarcely affected by variations of temperature, which was contrary to the opinion expressed by Mr. Merrifield in his recent paper "On the effects of temperature in the pupal stage on colouring," &c. Mr. McLachlan, Mr. A. J. Chitty, Mr. Bethune-Baker, Mr. Tutt, Mr. Barrett, and Mr. Frohawk took part in the discussion which ensued.

Dr. Sharp read a paper, entitled, "On Stridulating Ants." He said that examination revealed the existence in ants of the most perfect stridulating or sound-producing organs yet discovered in insects, which are situated on the 2nd and 3rd segments of the abdomen of certain species. He was of opinion that the structures

which Sir John Lubbock thought might be stridulating organs in *Lasius flavus* were not really such, but merely a portion of the general sculpture of the surface. Dr. Sharp said that the sounds produced were of the greatest delicacy, and Mr. Goss had been in communication with Mr. W. H. Preece, F.R.S., with the view of ascertaining whether the microphone would assist the human ear in the detection of sounds produced by ants. Mr. Preece had stated that the microphone did not magnify, but merely reproduced, sound. A long discussion ensued, in which the President, Canon Fowler, and Messrs. Champion, McLachlan, Goss, Hampson, Barrett, Jacoby, and others took part.

Mr. C. J. Gahan read a paper, entitled, "Notes on the Longicornia of Australia and Tasmania, Part I; including a list of the species collected by Mr. J. J. Walker, R.N., and descriptions of new forms."—H. GOSS and W. W. FOWLER, *Hon. Secretaries*.

#### HEMIPTERA-HETEROPTERA

COLLECTED BY J. J. WALKER, ESQ., R.N., F.L.S., AT GIBRALTAR,  
AND IN NORTH AFRICA.

BY EDWARD SAUNDERS, F.L.S.

The following list of the species of *Hemiptera-Heteroptera* collected by Mr. Walker has been awaiting publication for some time; it is, as will be seen, very rich, except in the Family *Capsidæ*, the species of which do not fall so frequently under the notice of a Coleopterist, and are very difficult to preserve, unless set immediately after capture. Mr. Walker succeeded in obtaining three undescribed species, as well as a great many which are very rare in collections; a few species in this list will be found also recorded in Ent. Mo. Mag., vol. xii, p. 80, but although they did not form part of this collection, I thought it would be well to include them here, so as to make the list as full as possible. The character of Gibraltar, as a good entomological locality, is well sustained by the *Hemiptera*, but I have sought in vain in the boxes for the best known member of the Family. All are from Gibraltar, except where the locality is given.

#### PENTATOMIDÆ.

*Solenosthedium lynceum*, Fab., 1 specimen.—*Odontotarsus grammicus*, Lin., a few specimens; *caudatus*, 3 specimens.—*Psacasta cerinthe*, Fab., also from Tangier, on Boraginaceous plants; *tuberculata*, Rossi.—*Eurygaster maura*, Lin., common; *hotentotta*, Fab., common, 1 from Tangier and 1 from Benzus Bay, Morocco; *maroccana*, Fab., also from Tangier.—*Odontoscelis dorsalis*, Fab., 2 specimens; *fuliginosa*, Linn., common on the neutral ground in roads, &c.—*Ancyrosoma albolineatum*, Fab., a few specimens.—*Graphosoma semipunctatum*, Fab., on *Umbellifera*; *lineatum*, Linn., also from Tangier, and Benzus, Morocco, on *Umbellifera*.—*Podops dilatata*, Put., several.—*Cephaloctenus histeroideus*, Duf., not uncommon at roots of

maritime plants.—*Cydnus pilosus*, H.-S.; *flavicornis*, Fab., also from Tetuan.—*Macroscytus brunneus*, Fab.—*Geotomus punctulatus*, Costa, and *elongatus*, H.-S., also from Tangier and Tetuan.—*Brachypelta aterrima*, Foerst., also from Tangier.—*Schirus dubius*, Scop., also from Malaga, and *maculipes*, M. and R.—*Crocistethus Waltli*, Fab., also from Tangier, and var. *basalis*.—*Ochetostethus nanus*, H.-S., also from Esmir, Morocco.—*Menaccarus arenicola*, Schtz.—*Sciocoris homalotus*, Fieb., 1 specimen; *macrocephalus*, Fieb.; *fissus*, M. and R.; *reflexus*, Fieb.; *maculatus*, Fieb., 1 specimen, Tangier; — sp. ? , like *maculatus*, but with a shorter and broader head, possibly not specifically distinct; *sulcatus*, Fieb.; *Helpferi*, Fieb., Tetuan.—*Dryoderes marginatus*.—*Ælia acuminata*, Lin., also from Tangier; *Germari*, Kust.; var. *cognata*, Fieb., also from Tangier.—*Neottiglossa bifida*, Cost.; *leporina*, H.-S.—*Eysacoris inconspicuus*, H.-S., also from Tangier and Tetuan.—*Staria lunata*, Hahn., 1 specimen.—*Holcostethus analis*, Cost., also from Tangier; *sphacelatus*, Fab.—*Peribalus distinctus*, 1 specimen, with a black ring on the apical joint of the antennæ, as in *vernalis*.—*Carpocoris fuscispinis*, Boh., also from Malaga and Tetuan; *varius*, Fab., and a very dark variety from Djebel Moussa, Morocco; *baccarum*, Linn., 1 specimen.—*Nezara viridula*, Linn., also from Tangier.—*Piezodorus incarnatus*, Germ., also from Tangier.—*Rhaphigaster grisea*, Fab.—*Holcogaster fibulata*, Germ., also from Tetuan.—*Strachia ornata*, Lin.; *picta*, H.-S.; *decorata*, H.-S.—*Picromerus nigridentis*, Fab., 1 specimen.

### COREIDÆ.

*Prionotylus brevicornis*, M. and R.—*Phyllomorpha laciniata*, Vill., also from Tetuan.—*Centrocoris spiniger*, Fab., also from Tangier and Tetuan; Mr. Walker tells me that this insect stridulates loudly.—*Spathocera lobata*, H.-S.; *Ståli*, Put.—*Enoplops cornuta*, H.-S., also from Algeciras; *bos*, Dohrn., on Boraginaceous plants.—*Vertusia rhombea*, Lin.; *sulcicornis*, Fab., also from Tangier, Tetuan, Malaga, and Peregil Island.—*Syromastes marginatus*, Lin., also from Algeciras.—*Gonocerus insidiator*, Fab., also from Benzus Bay, Morocco.—*Pseudophlaeus Falleni*, Schill., 1 specimen; *Waltli*, H.-S.—*Strobilotoma typhæcornis*, Fab., also from Tetuan and Malaga.—*Loxocnemis dentator*, Fab., Tetuan.—*Coreus denticulatus*, Scop., also from Malaga; *affinis*, H.-S.—*Microlytra fossularum*, Rossi.—*Camptopus lateralis*, Germ., also from Tetuan.—*Stenocephalus agilis*, Scop., also from Tetuan; *neglectus*, H.-S., also from Tangier.—*Therapha hyoscyami*, Lin., by sweeping *Ononis*, also from Tetuan.—*Corizus crassicornis*, Lin.; *distinctus*, Sign.; *hyalinus*, Fab., also from Tangier; *tigrinus*, Schill., Tangier.—*Macevethus errans*, Fab., Tangier.

### LYGÆIDÆ.

*Lygæus equestris*, Lin., also from Tangier, Tetuan, Benzus Bay, Morocco; *militaris*, Fab., also from Tetuan; *saxatilis*, Scop.; *maculicollis*, Germ., also from Malaga; *punctato-guttatus*, Fab., also from Tetuan, on *Verbascum* and under stones.—*Lygæosoma reticulatum*, H.-S., also from Tetuan.—*Nysius Stålianus*, Horv.; *graminicola*, Kol., Horv., also from Tetuan.—*Cymus melanocephalus*, Fieb., also from Tetuan.—*Cymodema tabidum*, Spin., also from Tetuan.—*Ischnodemus Gensei*, Spin., also from Tangier, in tufts of grass.—*Heneustaris laticeps*, also from Tetuan,

and Benzus Bay, Morocco.—*Blissus hirtulus*, Klug., pretty plentiful.—*Geocoris erythrocephalus*, Lep.; *siculus*, Fieb., also from Tetuan; *pygmaus*, Fieb.; *lineola*, Ramb.—*Artheis foveolata*, Spin.—*Holocranum saturejæ*, Kol., Plain of Buzaghal, Tetuan.—*Heterogaster urticæ*, Fab., also from Tetuan.—*Macropterna convexa*, Fieb., 2 specimens, 1 a very dark variety.—*Microplax plagiata*, Fieb., also from Plain of Buzaghal, Tetuan; *interrupta*, Fieb.—*Metopoplax ditomoides*, Costa.—*Oxycarenus lavateræ*, Fab.; *hyalinipennis*, Costa.—*Macroplax fasciata*, H.-S., Esmir and Tetuan.—*Bycanistes naso*, Stål, Plain of Buzaghal, Tetuan, 1 specimen.—*Paromius leptopoides*, Baer.; *gracilis*, Ramb., Tetuan.—*Rhyparochromus puncticollis*, Luc., also from Tangier; *prætextatus*, H.-S., also from Tetuan; *chiragra*, Fab., var. *sabulicola*, Thoms.—*Piezoscelis staphylinus*, Ramb., also from Tangier and Tetuan.—*Proderus suberythropus*, Cost., also from Tetuan.—*Pterotmetus staphylinoides*, Bur., var. *dimidiatus*; *Ischnocoris angustulus*, Boh., var. *nigricans*, Put., also from Tetuan.—

### ISCHNOCORIS LATICEPS, Saund., *n. sp.*

Punctulato Fieber affinis, ab illo autem oculis majoribus et spatio inter illos multo angustiore, antennisque gracilioribus, facile distinguenda.

Capite thoraceque nigris, valde punctatis, illo thorace latiore oculis maximis, vertice oculo vix latiore, antennis valde gracilibus nigris, articulo basali apice pallido, hoc antice macula parva marginali, lateribus anguste, et fasciâ latâ postice flavis; scutello nigro. Hemelytris flavis, valde punctatis, apicibus nigris; membrana pellucida; pedibus flavis.

Tetuan.

—*Aoploscelis bivirgatus*, Costa.—*Lamprodema maurum*, Fab.—

### PLINTHISUS SAUNDERSI, Horv., *n. sp.*

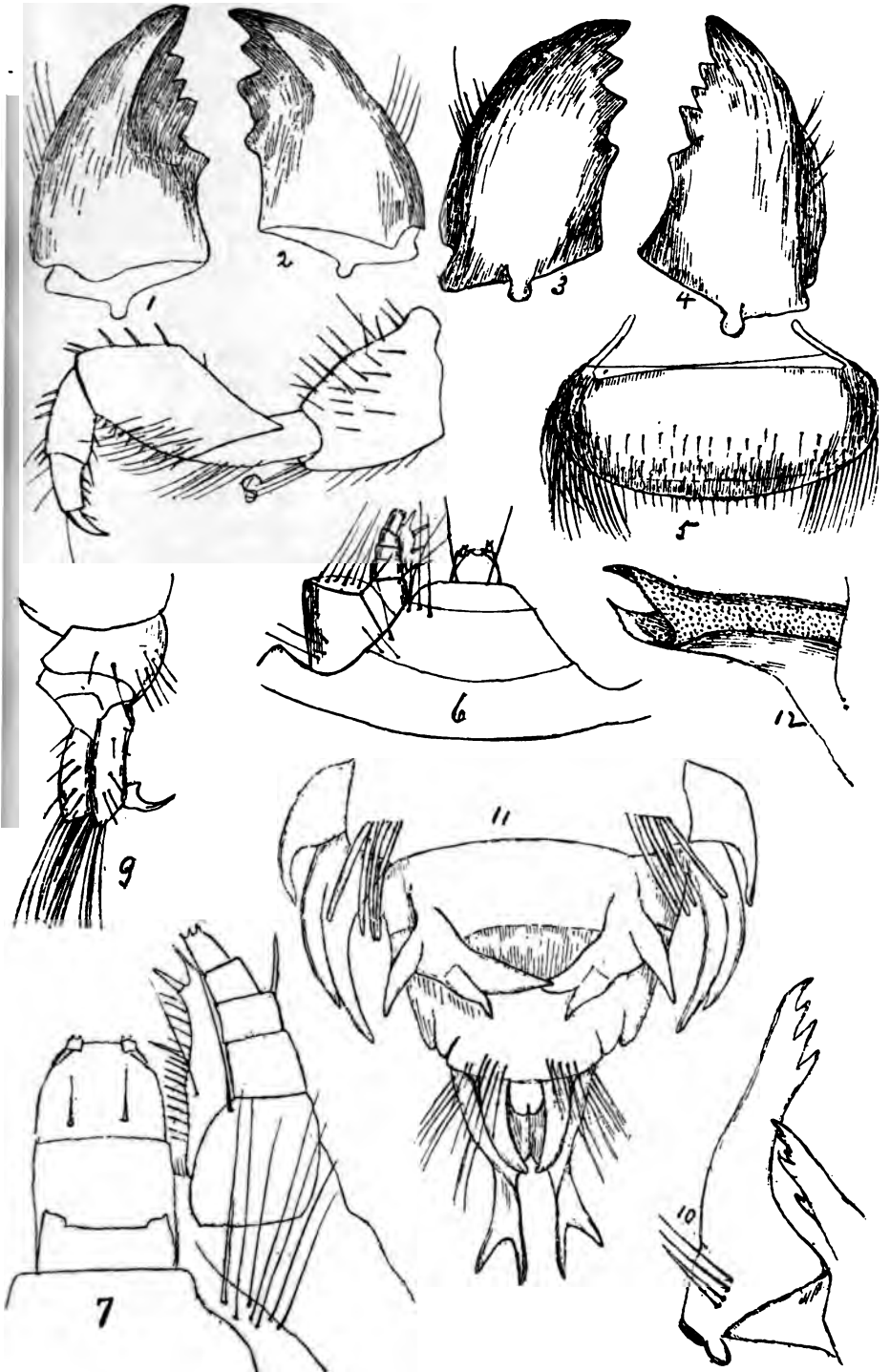
One specimen, Gibraltar. I communicated this to Dr. Horvath, who has kindly sent me the following description of it:—

"Oblongus, niger, subtilissime punctulatus et griseo-puberulus; pronoto subquadrato, parum convexo, retrorsum levissime angustiore; hemelytris nigro-piceis, unicoloribus, abbreviatis, postice oblique truncatis, membrana minutissima, tantum limbum angustissimum grisescentem formante; segmentis tribus apicalibus dorsî abdominis cum parte apicali media segmenti tertii detectis, levigatis, nitidis; connexivo fusco-piceo; antennis, rostro et pedibus fusco testaceis, antennis apicem versus nec non femoribus obscurioribus. ♂, Long., 1½ mm.

"Gibraltar, J. J. Walker. Comm. Dom. Edw. Saunders.

"This species is closely allied to *ptilioides*, Put., but differs from it by the darker colour of the antennæ and legs, by the entirely black lateral margins of the pronotum and elytra, and, above all, by the structure of the elytra themselves, these are less obliquely truncate posteriorly, and a little more abbreviated, so that they leave uncovered not only the last three segments of the abdomen, but also a small portion of the preceding segment; the rudimentary membrane is narrower, and the channel along the external margin of the elytra much narrower."

*Plinthisus pilosellus*, Horv., Tangier; *Putoni*, Horv.; *longicollis*, Fieb.; *flavipes*, Fieb.—*Acompus rufipes*, Wolff.—*Stygnus arenarius*, Hahn.





## STYGNUS TRUNCATUS, Horv., n. sp.

One specimen, Gibraltar, also examined and described by Dr. Horvath, as below:—

"Niger, subopacus, crebre fortiterque punctatus, parce flavescenti-puberulus; capite antrorsum sat fortiter declivi; antennis, rostro, tibiis et tarsis fusco-piceis; femoribus, apice tarsorum, articuloque antennarum basali nigro-piceis, harum articulo ultimo penultimo brevior; hemelytris abbreviatis, apice oblique recte truncatis, membrana minutissima, tantum limbum angustissimum et ægre distinguendum formante. ♂, Long., 3 mm.

"Gibraltar, J. J. Walker. Comm. Dom., Edw. Saunders.

"Extremely closely allied to *S. rusticus*, Fall., but differs in the head being more declivous in front; the 4th joint of the antennæ shorter than the 3rd; the lateral margin of the corium entirely concolorous, their posterior margin quite straight, and the membrane reduced to a very narrow border, scarcely visible. *S. rusticus* has the apical margin of the corium sinuate near the inner angle, and the rudimentary membrane more developed, forming a white semilunar appendix."

—*Peritrechus gracilicornis*, Put., also from Tetuan. —*Microtoma atrata*, Goese, also from Malaga. —*Hyalochilus ovatulus*, Cost., by sweeping. —*Calyptonotus Rolandri*, Linn., also from Tetuan. —*Aphanus leucodermus*, Fieb., also from Tetuan; *carbonarius*, Ramb., also from Tetuan and Tangier; *pedestris*, Pz., also from Tetuan; *quadratus*, Fab.; *saturnius*, Rossi, also from Tetuan; *inanimensis*, Costa, Ceuta, Marocco. —*Beosus luscus*, Fab., also from Tetuan. —*Dieuches armipes*, Fab. —*Neurocladus brachiidens*, Duf., among grass. —*Emblethis verbasci*, Fab., also a very small dark var. from Tetuan; *griseus*, Wolff. —*Drymus scambus*, Stål; *syloaticus*, Fab., var., Tangier. —*Scolopostethus decoratus*, Hahn., also from Tetuan and Algeciras. —*Notochilus nervosus*, Fieb., also from Tangier; *marginicollis*, Luc., also from Tangier; *taurus*, Costa; *ferrugineus*, M. and R.; *crassicornis*, Baer. —*Pyrhocoris apterus*, Lin.; *egyptius*, Lin.

## TINGIDIDÆ.

*Pisma quadrata*, Fieb. —*Cantacader quadricornis*, Lep., also from Tetuan. —*Serentia atricapilla*, Spin., also from Tetuan and Plains of Buzaghal; *lata*, Fall.; *nigra*, Fieb. —*Campylostira verna*, Fall., Tangier. —*Dictyonota crassicornis*, Fall. —*Monanthia cardui*, Lin., also from Tangier; *ragusana*, Fieb., *geniculata*, Fieb., and *liturata*, Fieb.; *eryngii*, Latr., Tetuan; *Wolffi*, Fieb.; *nassata*, Put., Malaga. —*Monosteira unicostata*, M. and R.

## PHYMATIDÆ.

*Phymata monstrosa*, Fab., also from Tangier: predaceous, one caught eating a fly on an Umbel. —*Aneurys lavis*, Fab., also from Tangier.

## HEBRIDÆ.

*Hebrus pusillus*, Fall., also from Tetuan. —*Mesovelis furcata*, M. and R., Tetuan.

## HYDROMETRIDÆ.

*Hydrometra stagnorum*, Lin., Tetuan. —*Microvelis pygmaea*, Duf., Tetuan

— *Velia rivulorum*, Fab. — *Gerris najas*, De G., also from Tetuan and Algeciras ; *aspera*, Fieb., Tetuan ; *thoracica*, Schum. ; *argentata*, Schum., Tetuan.

### REDUVIIDÆ.

*Cerascopus domesticus*, Scop. — *Ischnonyctes barbarus*, Luc. — *Sastrapada Baerensprungi*, Stål, also from Esmir and Marocco. — *Oncocephalus pilicornis*, H.-S. ; *squalidus*, Rossi, also from Tangier. — *Reduvius personatus*, Jin. — *Pirates hybridus*, Scop., also from Tangier and Tetuan ; *strepitans*, Ramb., also from Tetuan and Ceuta. — *Harpactor sanguineus*, Fab. ; *iracundus*, Poda ; *erythropus*, Lin., also from Benzus Bay, Marocco. — *Coranus aegyptius*, Fab., and *niger*, Ramb., also from Tetuan. — *Prostemma guttula*, Fab., also from Tetuan ; *bicolor*, Ramb., also from Tangier ; *albimacula*, Stein. — *Allæorhynchus flavipes*, Fieb., Tangier. — *Nabis lativentris*, Boh., also from Tetuan ; *major*, Cost. ; *ferus*, Lin. ; *viridulus*, Spin., Tetuan.

### SALDIDÆ.

*Salda xanthochila*, Fieb. ; *pallipes*, Fab., Esmir and Tetuan ; var. *arenicola*, Schlitz. ; *opacula*, Zett. ; var. *setulosa*, Put., Tetuan and Esmir ; *Cocksii*, Curt., Esmir and Tetuan. — *Leptopus echinops*, Duf., also from Tangier.

### CIMICIDÆ.

*Lyclocoris campestris*, Fab., also from Tetuan. — *Piezostethus galactinus*, Fieb. — *Anthocoris Minki*, ?, Dohrn. — *Brachysteles rufescens*, Costa, Tangier ; *parvicornis*, Costa, Tetuan. — *Triphleps nigra*, Wolff., var. ? — *Myrmedobia coleoprata*, Fall., also from Tangier.

### CAPSIDÆ.

*Miris calcaratus*, Fall., Tangier. — *Lopus sulcatus*, Fieb. ; *lineolatus*, Brul., Tangier. — *Calocoris sexpunctatus*, Fab. — *Capsus punctum*, Ramb. — *Lygus campestris*, Fab. — *Campitobrochis punctulata*, Fall. — *Pæcilosecytus cognatus*, Fieb., 1 ♀. — *Labops minor*, Costa ; *flavomarginatus*, Cost., 1 ♂. — *Conostethus venustus*, Fieb. — *Psallus*, sp. ?, allied to *varians*.

### PELOGONIDÆ.

*Pelagonus marginatus*, Latr.

### NAUCORIDÆ.

*Naucoris maculatus*, Fab., also from Tetuan.

### NEPIDÆ.

*Nepa cinerea*, Lin.

### NOTONECTIDÆ.

*Anisops producta*, Fieb. — *Plea minutissima*, Fab., also from Tetuan.

### CORIXIDÆ.

*Corixa atomaria*, Ill. ; *lugubris*, Fieb. ; *Linnæi*, Fieb., also from Tetuan ; *Sahlbergi*, Fieb., 1 specimen ; *transversa*, Fieb. ; *Fabricii*, Fieb.

St. Ann's, Woking :  
February 23rd, 1893.



## A FEW REMARKS ON COCCIDS.

BY W. M. MASKELL, F.R.M.S.

I.—*LECANIUM HESPERIDUM* and *LECANIUM LAURI*.

Mr. Douglas and Mr. Newstead, in this Magazine (September, 1891, p. 244), make some observations regarding the differences between these two insects. They give a comparative synopsis of the two, based principally on certain characters observed in the feet, for, as they remark, "the antennæ in both kinds do not appreciably differ." Dr. Signoret (Essai, p. 230) expressed doubts whether the two were not really identical, but the conclusion of Messrs. Douglas and Newstead is that the characters of the feet are sufficient to separate them.

In my "Scale Insects of New Zealand," 1887, p. 80, I included *L. hesperidum* as infesting holly, ivy, laurel, and other plants, and I did not mention *L. lauri*. In "Insect Life" (I cannot just now mention the particular number), Professor Riley asked whether the true *L. hesperidum* exists in New Zealand. The question came in only incidentally, if I recollect aright, but presumably its meaning was that probably the form in this country was *L. lauri*; and, considering that citrus trees in New Zealand are uncommon except in the north, and that the insect occurs plentifully everywhere on so many other plants, the question was a very natural one.

Early in the present year I received from Mr. Koebele, who was then on his second trip to Australia, some leaves of orange from Sydney, infested by a scale very closely resembling *L. hesperidum*, but larger and lighter coloured than our New Zealand form; and Mr. Olliff later on sent me twigs of the same plant with the same insect. I, therefore, took the opportunity of carefully comparing the Australian and the New Zealand forms: and the result is, that I am unable to establish a specific difference between *L. hesperidum* and *L. lauri*. I take no account of size and colour in the two, these are very variable characters; and the rich juices of citrus naturally, as I think, induce insects feeding thereon to be larger and handsomer than those on the hard food of holly or ivy; but I have confined myself to Mr. Newstead's characters of the feet. I find that these are indiscriminately noticeable in the specimens (five) examined on citrus (Sydney) and the specimens (eight) on holly, laurel, &c. (New Zealand). Thus, the Australian specimens have—short tarsal digitules, two fine terminal tarsal hairs, and two coxal hairs, characters set down for *L. lauri*, and one very long hair on the trochanter, a character of *L. hesperidum*. The New Zealand specimens have—long tarsal digitules,

a long hair on the trochanter, and a hairless coxa, characters of *L. hesperidum*, and two terminal tarsal hairs, a character of *L. lauri*.

The conclusion, therefore, would seem to be either that *L. hesperidum* lives on laurel, ivy, holly, and other plants in New Zealand, whilst *L. lauri* attacks citrus in Australia (thus reversing the European arrangement), or else the two species are identical. I believe that the latter alternative is correct, and that I was right in 1887 in mentioning only *L. hesperidum*.

## II.—The genus PROSOPOPHORA, Douglas.

In the number of this Magazine for August, 1892, p. 207, Mr. Douglas establishes this genus for a species found in Demerara on *Dendrobium*. I have received from Australia two forms, the one on *Acacia*, the other on *Eucalyptus*, which had been for some time rather puzzling to me, as I could not make them fit into any known genus. The publication of *Prosopophora* came very opportunely to relieve my perplexity, and I propose to place my two species therein. But it is necessary to somewhat extend Mr. Douglas's generic characters, and also to fix others less definitely, for this purpose; and this, indeed, is necessary, because he has included one which is not really generic, but merely specific, viz., "Surface with granuloæ raised lines," and another which does not agree with his figure 1 f, viz., "no anal tubercles." As regards the former of these, an external roughness or tessellation of the covering sac or test can clearly not be used as generic, otherwise we should have to be perpetually creating new genera on insufficient grounds. As regards the second, the anal tubercles of *Prosopophora dendrobii* are clearly (from figs. 1a and 1f) at least as conspicuous as in *Dactylopius* or *Planchonia*, and, indeed, more so. Again, one of Mr. Douglas's generic characters is—"Legs atrophied." Here I propose to insert the word "usually," because as it stands it would forbid at any future time the inclusion of a species which might be discovered possessing every character of the genus except in having fully formed feet, and I think it would be a pity to erect a new genus only on that difference.

I venture, therefore, in order to add my two Australian species to Mr. Douglas's genus, to extend and modify some of his generic characters, as shown below. Further, I see no reason why this genus should not be attached to the Sub-Division *Acanthococcidæ*, as it very clearly is not very far removed from *Planchonia*; indeed, if there were a fringe to the sac I would merge it in that genus. Mr. Douglas does not mention any spinnéret-orifices in *P. dendrobii*, but in both

my species, *P. araciæ* and *P. eucalypti*, there are rows of figure-of-eight orifices resembling those noticeable in all the species of *Planchonia*. This being so, and the anal tubercles being certainly present, the generic description would be as follows:—

### Sub-Division ACANTHOCOCCIDÆ.

#### Genus PROSOPOPHORA, Douglas.

Adult female covered with a test, which is either waxy or so closely felted as to appear almost homogeneous. Margin of test without fringe. Antennæ of not more than eight joints. Anal tubercles present, but in the species observed very small. Anogenital ring with more than eight hairs. Feet usually atrophied. Mentum usually monomeric. There is generally a small terminal orifice in the test.

Male pupa covered with a test of similar material to that of the female. Adult with antennæ of ten joints.

Larva naked, exhibiting anal tubercles. Antennæ of six joints.

Both of my Australian species produce beneath them depressions in the twigs they inhabit; these depressions are usually filled with empty egg-shells. How they are produced I am quite unable to say.

### III.

I hope to be able to complete, in time for the next volume of the "New Zealand Transactions," a further *Coccid* paper, dealing with a large number of species, sent to me from Australia, India, the islands of the Pacific, and other countries, by Messrs. Koebele, French, Tepper, Cotes, and others. These are not all new species, as I have found amongst them several which, infesting hothouse plants in Europe, were described by Signoret. Nor have I any which approach in strangeness and complexity the extraordinary creatures reported in my paper for 1891.

Wellington, New Zealand:

November 23rd, 1892.

### A THIRD SPECIES OF *ALEURODICUS*.

BY T. D. A. COCKERELL, F.Z.S.

#### *ALEURODICUS ORNATUS*, n. sp.

There is a white *Aleurodes* quite abundant on the leaves of *Cap-sicum* in the yard of my house in Kingston; but the other day I noticed a different species on one of the leaves, larger and marked with grey. On examining some of the insects I was much interested to find that they presented all the characters of Mr. Douglas's genus *Aleurodicus* (Ent. Mo. Mag., 1892, p. 32).

The imago, from head to the tip of the wings, measures somewhat over 2 mm., and structurally agrees so well with the two known species of the genus, that I should not have ventured to bring it forward as new, were it not for the beautiful grey markings of the narrower upper wings. These markings, which distinguish the insect at a glance, consist of four broad transverse grey bands, and a longitudinal band running from the outermost to the margin a little below the apex. On the upper half of the wing (*i. e.*, above the central nervure) the bands are nearly straight and about equidistant, but they mostly enlarge about the middle of the wing, the third and fourth being joined together by the inward prolongation of the longitudinal band. The third band is interrupted below its middle, and its lower part is joined to the second band, of which it appears an oblique branch. The true prolongation of the second band bends obliquely inwards, and is joined at one point to the first band. The second band is also joined to the first by a thin process in the region of the central nervure. For the rest, the insect is white, with the abdomen slightly yellowish. The larva is grey, with white secretion. The antennæ, legs, venation, glands of larva, &c., seem to be practically as in *A. anona*, and need not, therefore, be described.



Institute of Jamaica :

March, 1893.

## ON THE EMPLOYMENT OF ARSENIC AS A PRESERVATIVE IN COLLECTIONS OF INSECTS.

BY ROBERT McLACHLAN, F. R. S., &c.

The following remarks were called forth by a perusal of the chapter on "Museum Pests" in Prof. Riley's "Instructions," which were noticed in our No. for October, 1892.

The collector of British Insects who has a supply of the best English-made Cabinets (little known abroad), the drawers of which are fitted with "camphor cells," has little to fear if the cells are periodically filled with camphor or flake naphthaline, and in course of time the drawers become so saturated, especially if camphor is used, as to require little attention. My own collection of British *Lepidoptera* is contained in two such cabinets, probably over 60 years old, so thoroughly "camphored," that I believe (though I do not act implicitly on the belief) they require no further supplies of the preservative. But camphor has its disadvantages. It undoubtedly (how, I think, has never been explained) tends to the development of "grease," and it becomes deposited on, and clogs, the parts where minute structural characters require to be examined. Latterly camphor has somewhat gone out of fashion, and naphthaline (which is more volatile) often reigns in its stead.

But collectors of foreign insects usually use boxes, not fitted with cells. In large collections several hundreds of boxes are necessary, and it is obvious that care must be exercised. Yet it is wonderful how little care is necessary when, as is usual in collections of foreign insects, long pins are used. Still, the much-dreaded *Anthrenus*, to say nothing of minor pests, will occasionally appear, and often do incalculable damage before it is detected. And this applies more forcibly to store and duplicate boxes.

As preservatives, Prof. Riley mentions naphthaline (in the form of "cones" on pins), bisulphide of carbon (an evil-smelling liquid), mercury pellets, and carbolic acid (Dr. Sharp has told us how to apply the latter in our last No.). Mercury has been found objectionable by those who have used it, both in its crude form and as corrosive sublimate. To English readers it will appear strange that he does not even allude to camphor, but he accuses naphthaline of having the same bad properties, viz., the development of "grease," and the precipitation of crystals on the insects. In this respect my own experience is distinctly in favour of naphthaline, which in the "pure" form ordinarily used here has not been found by me to deposit crystals; from a chemical point of view, I presume the impure or albo-carbon form should be richer in the preservative elements, but on volatilization it usually leaves an objectionable bitumenous residuum.

Prof. Riley makes no mention of arsenic, and it is little in use amongst entomologists. It was brought to my notice many years ago by my now venerable friend, Baron de Selys-Longchamps. The idea originated, however, with the late Mr. H. W. Bates. When the latter was on the Amazons he found that his insects suffered dreadfully from pests, and it occurred to him to make up some of the arsenical soap he used for skins into a semi-liquid condition and to paint the bottoms of his boxes with it. From that time forward the pests ceased to trouble him. Baron de Selys acted on the suggestion, and used arsenic combined (I think) with plaster of Paris as a paint for the insides of his drawers and boxes, and found it infallible, which I can confirm, so far as regards certain cigar boxes adapted as store boxes, so prepared by him, and which I have had for years. For cabinet drawers this "paint" has certain objections; but arsenic can be used in another form. It must now be quite 15 years ago since my friend gave me two bottles of solution of arsenic in rectified alcohol. In the one case it was the ordinary arsenious acid (the white arsenic of commerce) in the other arsenite of soda. The quantity of arsenic necessary is that enough to cause a just appreciable deposit when

evaporated on a blackened surface. The bottom of the drawers or boxes may be saturated with the solution, the alcohol soon evaporates, but the arsenic remains for practically all time, not being volatile as is the case with most other preservatives. I use the solution principally for touching the bodies of dragon-flies and other large insects when on the setting boards; insects so touched remain perfectly safe, and it is only rarely that a slight deposit is observable when the solution has been allowed to spread on the wings (not to be compared in any way with that left by corrosive sublimate); still this might render its use objectionable in the case of brilliantly metallic or polished beetles, &c. In boxes placed on end a small collection of *débris* usually accumulates in the lower corners in the course of years, quite independently of the presence of pests; but these accumulations invite pests, and it is well to drop a small quantity of the solution in the corners. For the "purgatorium" used by those who have time and assistance for "disinfecting" insects before placing them in the collection, it is probable that bisulphide of carbon is to be preferred, as a preliminary, but its evil odour renders it unsuitable for general use.

So much, then, in favour of arsenic, a preservative that is seldom if ever mentioned so far as collections of insects are concerned. I would anticipate a possible objection by saying that the extremely small quantity held in solution and afterwards deposited is scarcely likely to be injurious to health, and, in fact, the quantity is infinitesimal as compared with that present in collections of bird and other skins. I can state from experience that a small supply goes a very long way.

The rough draft of these remarks was written several months ago (just after the appearance of Prof. Riley's book) and forgotten: recent queries as to preservatives have caused it to be sought out, revised, and published.

Lewisham, London: April, 1893.

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THE DISTINCTIVE AND SEXUAL CHARACTERS OF *CHEYSOPA FLAVA*, SCOPOLI, AND *CH. VITTATA*, WESMAEL (SECOND NOTICE).

BY ROBERT McLACHLAN, F.R.S., &c.

Under the above heading I published a short article in this Magazine, Vol. xx, pp. 161—163 (December, 1883). In the course of that article mention is made of its having taken its origin from an examination of some striking examples of "*Ch. flava*" from Central Italy. So far as the form and structure of the wings in *Ch. flava* are

concerned, I have nothing to add to what is there published. But it was *most unfortunate* that the details given for the anal parts of the ♂ should have been taken from the ♂ from Central Italy as regards *flava*, for I have recently ascertained that these Central Italian examples represent quite a distinct species, and which is no doubt *Ch. gadarramensis*, Ed. Pict., described originally from a Spanish female. Moreover, I find that in the ♂ appendages *Ch. flava* and *vittata* closely resemble each other, although the wing-structure is so different, whereas in *flava* and *gadarramensis*, although the wing-structure is the same, the ♂ appendages differ widely. Apparently the only obvious difference between these two last-named species, outside the appendages, is that the two series of gradate nervules in the wings are strikingly black in *gadarramensis*. I proceed to give amended diagnostic characters:—

*Ch. vittata*.—Costal margin of anterior wings *nearly straight* (or slightly convex) in both sexes, the costal area narrowing gradually. In *both sexes* the costal nervules are *all slender*. Superior anal appendages of the ♂ much shorter than the inferior appendage, stout, sub-cylindrical, but concave internally, the apices obtuse, turned abruptly inward, and carrying a pencil of hairs. Inferior appendage with a broad, boat-shaped basal portion, and an *acute* (? articulated) *lanceolate apical portion turned abruptly upward and backward*. and extending to between the superior appendages.

*Ch. flava*.—Costal margin of anterior wings excised in both sexes. In the ♂ the margin is much elevated at the base, and then *almost suddenly depressed*, so that the costal area is wide at the base and then *becomes almost suddenly narrowed*. In the ♀ the excision is *shallow and gradual*. In the ♂ the costal nervules are *much incrossated* from the point where the area is suddenly narrowed; they are all slender in the ♀. Superior appendages much as in *Ch. vittata*, but apparently more divergent, the inturned apices perhaps more constricted at their junction with the basal portion. Inferior appendage having the up- and inturned apical portion *much shorter, obtuse*, and carrying a short dense pencil of stiff hairs at its apex.

*Ch. gadarramensis*.—Structure of wings (♂ and ♀) as in *Ch. flava* (the gradate nervules conspicuously black). Superior appendages *longer than the inferior*, stout, cylindrical (but concave internally), the obtuse apices *curved upward and inward*, and each furnished with a strong incurved pencil of hairs. Inferior appendage having the apical portion *somewhat as in Ch. vittata*, but probably less acute, and carrying an acute pencil of stiff dark hairs at its tip.

As more than eight years have elapsed since my first article on this subject was published, it is somewhat strange that the error should have remained undetected.

Lewisham, London: March 31st, 1893.

CONSPECTUS SPECIERUM GENERIS *TRIGONOTYLUS*, FIEB.

DESCRIPSIT O. M. REUTER.

- 1 (2) *Statura latior.* Antennæ subtiliter pilosulæ, pallide virescentes, versus apicem dilutissime fuscescentes, articulo primo capite brevior, duobus ultimis simul sumtis secundo vix æquilongis, tertio, secundo circiter  $\frac{2}{3}$  vel fere  $\frac{1}{2}$  brevior, quarto tertio triplo brevior. Caput latitudine postica cum oculis solum paullo longius, a basi usque ad apicem frontis latitudine brevius. Pedes quam in sequentibus fortius pubescentes. Tarsi postici articulo primo duobus ultimis simul sumtis brevior. Pallide virens, vittis capitis, pronoti et scutelli dilute fuscescentibus. Corpus inferne unicolor, vitta laterali destitutum. Long.,  $6\frac{1}{2}$  mm.
1. *brevipes*, Jakovl.
- 2 (1) *Statura angustior.* Antennæ glabræ, solum articulo primo pilis brevibus fuscescentibus vel nigris adpressis, articulis duobus ultimis simul sumtis secundo longioribus, tertio secundo paullulum (vix magis quam  $\frac{1}{3}$ — $\frac{1}{2}$ ) brevior. Tarsi postici articulo primo duobus ultimis simul sumtis æque longo.
- 3 (4) *Caput latitudine postica solum paullo longius, a basi usque ad apicem frontis latitudine cum oculis brevius.* Antennæ rufæ, versus apicem fuscæ, articulo primo sæpe magis minusve virescente, capiti vix æque longo. Virescens, vittis capitis, pronoti et scutelli fuscis. Corpus inferne unicolor, vitta laterali destitutum. Pedes tenuiter pallido pubescentes. Tibiæ posticæ apice tarsi que sæpe rufescentes, articulo tertio apice vel fere toto nigro. Long.,  $5\frac{1}{2}$ — $6\frac{1}{2}$  mm. .... 2. *ruficornis*, Fall.
- 4 (3) *Caput latitudine postica distinctissime (sat multo) longius, a basi usque ad apicem frontis latitudini cum oculis æque longum.* Antennæ articulo primo capiti æquilongo. Corpus pallide flavens vel stramineum, vittis capitis, pronoti et scutelli sanguineis, inferne utrinque vitta laterali sanguinea.
- 5 (6) *Antennæ rufæ, articulo primo pallide flavente, rufo marginato, interdum etiam secundo basin versus flavente.* Hemelytra circa suturam clavi rosea. Pedes breviter nigro-pubescentes, spinulis tibiæ nigris. Tibiæ posticæ tarsi que ut in præcedente ..... 3. *pulchellus*, Hahn.
- 6 (5) *Antennæ pallide flaventes, articulo primo externe et interne roseo-tinctæ.* Caput, pronotum et scutellum vittis fusco-sanguineis. Hemelytra interne rosea, commissura anguste fusca. Corpus inferne vitta laterali angusta. Pedes toti pallide straminei, subtiliter pallido-pubescentes, tibiis spinulis pallidis, tarsis articulo ultimo nigris. Long., 5—6 mm.
4. *pulcher*, Reut.

1.—*TR. BREVIPES*, Jakovl.

Jakovl., Trudi Russk. Ent., xi (1880), p. 215. *Megalocera* (*Trigonotylus*) *ruficornis* var., Reut., Ent. Mo. Mag., xiii (1876), p. 87. *Trigonotylus ruficornis*, var. *psammæcolor*, Reut., Berl. Ent. Zeitschr., xxix (1885), p. 146.



*Hab.* : locis arenosis, in *Psamma arenaria* (ipse) ; Russia meridionalis, Astrachan (*D. Jakovleff*) ; Scotia, in collibus Culbin Sands dictis, prope Forres (*D. Norman* et ipse) ; Insula Memmert Sand ad litus germanicum maris borealis, copiose (*D. Alfken*). Specimina rossica non vidi.

2.—*TR. RUFICORNIS*, Fall.

Reut., Rev. synonym. Hemipt., p. 242 ; *Megaloceraea*, *id.*, Saund., Hem.-Het. Brit. Isl., p. 224.

*Hab.* : locis paludosis in gramine : Europa, Sibiria, Turkestan, Insulæ Sechelles, Maké (*D. Alluaud*) ; America borealis.

3.—*TR. PULCHELLUS*, Hahn.

*Miris id.* Hahn, Wanz. Ins., ii (1834), p. 119, t. 66, f. 200 ; Scholz, Prodrom., p. 123, 8. *Trigonotylus ruficornis* var.  $\beta$ , Fieb., Eur. Hem., p. 243. *Tr. ruficornis* var. *pulchellus*, Reut., Berl. Ent. Zeitschr., xix (1885), p. 45.

*Hab.* : in collibus arenosis in gramine (*Schilling*), in pratis paludosis (*Hahn*) ; Europa media et meridionalis ; Turkestan.

4.—*TR. PULCHER*, Reut.

Reut., Ofvers. Vet. Akad. Förh. (1875), No. 9, p. 59.

*Hab.* : in America boreali, Texas. Plura specimina in Mus. Holm.

Helsingfors : *March*, 1893.

*The late Mr. Stainton's Collections, &c.*—We are much gratified at being able to announce that Mrs. Stainton has generously presented the whole of the collections to the British Museum (Natural History), and that Dr. Günther (on behalf of the Trustees) has kindly proposed to allow the principal portion of the collections to be kept separate, and to be hereafter known as the "Stainton Collection." With the collections Mrs. Stainton included the magnificent and costly set of original coloured drawings of transformations prepared for the "Natural History of the *Tineina*." Probably only a small portion of these have appeared in the 13 published Vols. of that work, and it is to be hoped that a complete list of the whole, compiled by an expert, will be printed, indicating those that have already been published, and those that have not. We shall probably have a further announcement to make at no distant date, after the return to England of our colleague, Lord Walsingham.—EDS.

*Abundance of Bombylius major.*—This fine Dipteron occurred very freely at Trench Woods this Easter. Fifty specimens fell to four nets, and quite as many more were seen but not taken. It would be interesting to know if other collectors have met with it as freely. No doubt the brilliant sunny weather accounts for their being so common.—R. C. BRADLEY, Sutton Coldfield, Warwickshire : *April 7th*, 1893.

*Abraxas ulmata*.—As this insect is under discussion, I may remark that it abounds in the neighbourhood of Bristol in a well-wooded rocky defile, named Brockley Coombe. Here the larvæ may be seen in the autumn dangling everywhere from the branches of the wych elm, but I have never obtained one from beech, which tree also abounds there, although having frequently beaten the latter for other species at the time when larvæ of *A. ulmata* were plentiful. I have, however, taken a few from hazel, and have subsequently proved that in captivity the larvæ will feed on it, although appearing to prefer the wych elm. In the early summer the perfect insect may be seen in profusion upon the leaves of the dog-mercury in the wood, with wings expanded flat, in which position they bear a very fair superficial resemblance to a splashed bird's dropping fallen from an overhanging tree.—R. M. PRIDEAUX, Ashted, Surrey: April 10th, 1893.

*Early appearance of spring Lepidoptera*.—*Satyrus Egeria* is not often to be seen in March, so I take pleasure in recording a specimen that I met with on the 31st ulto. on the southern slope of a wooded hill side near Ranmore, Surrey. Within a few yards of the same locality I saw a male *Anthocharis cardamines* yesterday (April 9th), and a specimen of *Pieris brassicae* near Leatherhead on the same day. On March 26th I note *Pieris napi*, and a single *Syrichthus alveolus* on a warm sandy bank, also near Ranmore, on April 3rd. *Teniocampa stabilis* and *Cymatophora flavicornis* were met with on March 4th, *T. munda* on the 6th, and a specimen of *Tephrosia crepuscularia* on the 18th, near Esher. Yesterday a neighbour showed me a specimen of *Dicranura bifida*, freshly emerged, which he had just taken drying its wings on a poplar-trunk, a few inches from its cocoon, at 6 p.m.—ID.

P.S.—Since writing the above notes I may add that on April 16th on some warm sunny hill sides near Dorking, I was pleased to observe a specimen each of *Argynnis Euphrosyne*, *Polyommatus Phlaeas*, and *Thanaos Tages*, three *Euchloë cardamines* (♂), and one or two examples of *Euclidia mi* and *E. glyphica*. On the evening of the same day, *Cucullia verbasci* and *Notodonta camelina* were met with at light. In the view of these forward emergencies, the incongruity of seeing *Anisopteryx ascularia* resting on the same gas lamps is striking. A lady informs me that she picked up a specimen of *Smerinthus populi* in a road at Croydon on the 10th instant.—ID.: April 19th.

*Arctia Caja feeding on Mercurialis perennis*.—The "dog-mercury" is a plant so remarkably exempt from larval attacks that I noted with interest, a few days ago, a small larva of *Arctia Caja* feeding steadily upon a leaf of it, in the morning sunshine. There were plenty of the more usual food-plants of the larva within its reach.—ID.

*Abraxas ulmata*.—I am very much obliged to Mr. Holland for his hint as to the wych elms among the beeches. In order to verify his suggestion I paid our beech woods a visit on Easter Monday, with the result that a few wych elms were found here and there, sufficient perhaps for *Abraxas ulmata* to feed upon. This, however, does not alter the fact, that many *ulmata* larvæ were found here on beech last autumn. If it is thought that this was an exceptional circumstance, then the curious deduction has to be drawn that *ulmata* has a predilection for wych elms

that are among beech trees, since we have thousands of wych elms in the vale where there are no beeches, but find no *ulmata* amongst them.—A. NASH, Standish Vicarage, Stonehouse, Gloucestershire: April, 1893.

*Early Lepidoptera*.—On the day of the visit mentioned above (Easter Monday, April 3rd) we had abundant proof of the peculiar forwardness of the season. *Pieris brassica*, *rapæ* and *napi*, and *Anthocharis cardamines*, were numerous. On the high ground *Thecla rubi* was met with in several places, and *Pararge ægeria* was flitting down all the woodland rides. In the woods themselves *Demas coryli* was found at rest on a stump, and on the trunks of the beeches *Tephrosia consonaria* and *biundularia*. Many of the *Tineina* were enjoying the bright sunshine; indeed, the insect world appeared to imagine it was May.—ID.

*Pieris rapæ in March*.—It is perhaps worth recording that I to-day (March 26th) captured a fine male specimen of *Pieris rapæ*. Is not this an usually early date for the appearance of the perfect insect? We have had splendid weather here the last ten days; *Vanessa urtica* and *Io* and *Rhodocera rhamni* have been on the wing pretty continuously since March 8th. Of the *Heterocera*, *Brephos Parthenias* has been fairly common, but local.—P. L. BABINGTON, Walmer House, Tonbridge: March 26th, 1893.

[I once saw *P. rapæ* on the wing on March 2nd, but am convinced the individual was the result of a larva that had crawled into some exceptionally sheltered position in order to metamorphose.—R. MoL.].

*Retinia retiferana*, Hein. (vice *margarotana*, H.-S.), a British species.—Among some specimens of Continental species, received last winter from Herr August Hoffmann, were two *Tortrices*, labelled respectively *Retinia margarotana* and *R. retiferana*. At a glance it was obvious that the insect under the former name was not that which was obtained in this country a few years ago by Mr. Hodgkinson; but the second species agreed well with it. Upon referring to Herr Hoffmann he obligingly called my attention to a paper by Dr. M. F. Wocke, in the "Zeitschrift für Entomologie," Breslau, 1879, in which it is stated that the species described as *margarotana* by Heinemann does not agree with that previously figured, but not described, by Herrich-Schäffer, under that name. Dr. Wocke takes upon himself the responsibility of the error, he having reared and forwarded to both Heinemann and Ratzeburg specimens of what he then supposed to be *margarotana*. More recently he reared from cones of *Pinus sylvestris*, found in Bohemia, specimens of a much darker species, which he recognises as agreeing with the figure of *margarotana*, H.-S., from the colour of the head and palpi, the dark colour of the fore-wings, and the white cilia of the hind-wings. He, therefore, proceeds to give the species which he had formerly obtained the name of *retiferana*, but, somewhat inconsequently, does not describe it, being satisfied with Heinemann's accurate description, but goes on to describe the other, which H.-S. had merely figured. He, however, says that *retiferana* feeds in spruce fir, that it is recognisably described by Heinemann, and that all that it is necessary to add is, that the hind-wings are light grey, with still paler grey cilia. I need not go further into the description of this species, as that by Heinemann is given in Ent. Mo. Mag., vol. xxvi, p. 49.

With regard to the genuine *margarotana* (which has not yet been found in the British Isles) it will be sufficient to say, that it is a very dark species, darker even than *resinella*, and that the dark grey of its fore-wings is broken up throughout by transverse bands of rather paler grey, in which are indistinct leaden lines; head and thorax also dark grey, almost blackish, hind-wings dark grey with whitish cilia; female slightly darker in colour and more robust than the male; it is also a somewhat stouter species than *retiferana*. It will be necessary in future to use the latter name in referring to our rare British species.—CHAS. G. BARRETT, 39, Linden Grove, Nunhead: *March 15th*, 1893.

*Note on Retinia duplana*, Hb.—In 1890 two females of this species were sent with other moths by one of his correspondents at Forres to Mr. Salvage then collecting in Ireland. They afterwards came into my hands, but owing to the damage done to them by grease and mildew, to say nothing of their having been relaxed and reset, it was by no means easy to identify them with any certainty, even with the help of foreign specimens. In 1891 the Messrs. Salvage took several specimens at Forres, which, when compared with those in Mr. P. B. Mason's series, and with others from Silesia, proved to be undoubtedly *R. duplana*. Mr. Barrett also kindly confirmed this identification. Last spring Mr. Reid, of Pitcaple, sent me some living females from Forres, which I sleeved on a small Scotch fir in my garden. The larvæ duly hatched and fed, as stated by von Heinemann, in the young shoots of the bush. Unfortunately, I did not trouble myself about them, consequently, when full grown, most of them ate their way out of the sleeve and were lost. A few larvæ luckily pupated in their prison in July, from which the moths are now emerging indoors. They are much more beautiful than the caught specimens; indeed, they resemble in brilliancy of marking the Scotch form of *R. pinivorana* rather than the dingy form of *R. turionana* known as *posticana*, with which the species has lately been confused in this country.—W. H. B. FLETCHER, Worthing: *March 13th*, 1893.

*Early Hymenoptera*.—Yesterday (March 23rd) I took two male *Colletes cunicularia*, and to-day there were many more about, and I took one female also; this is a very early record for our local bee. The spot where the insects occurred is a new locality, six miles west of the head quarters of the species at Wallasey, but on ground of same character—rough sand hills by the sea. The males were coursing very rapidly backwards and forwards, as is their wont, on a steep bank of bare sand, seemingly regardless of sweet willow bloom in valley below; the female, as usual, was revelling in the willow blossoms.—WILLOUGHBY GARDNER, Hoylake, Cheshire: *March 24th*, 1893.

*Nomada borealis* parasitic on *Andrena lapponica*.—*Andrena lapponica* appeared here this year in considerable numbers. I saw the first ♀ on March 5th, and during the following six or seven days they were out in abundance. On March 11th and 12th they were nearly all engaged in carrying pollen. On the 12th I saw several *Nomada* flying about the burrows of *lapponica*, and on catching one found it to be *N. borealis*. A second one that I caught was just about to enter one of the burrows. A friend, Mr. H. Elgar, who was with me, caught two more. They were all of the same species. I am not aware that *Nomada borealis* has been previously recorded as parasitic on *A. lapponica*, it being usually found with *A. Clarkella*; in fact, only

the day previous I had taken it with *Clarkella* nearly half a mile distant from where I found it with *lapponica*.—G. E. FRISBY, 27, Hedley Street, Maidstone : *April 7th*, 1893.

*Two additions to the British Hymenoptera*.—Amongst various insects sent to my father in 1861, is a specimen of *Palemon liparæ*, Giraud. It is ticketed "Bred, sent by Winter, May, 1861," from Beccles, Suffolk. Amongst other insects sent to my father by Mr. Winter were specimens of a fly, *Lipara lucens*, Meig. On August 30th, 1877, I took a specimen in this parish of the pretty *Acalius erythronotus*, Foerst. These were kindly named for me by the Rev. T. A. Marshall, who tells me the former species has been reared from *Lipara lucens* by Giraud.—C. W. DALE, Ghanvilles Wootton : *April 12th*, 1893.

*Paracletus cimiciformis*, Heyd., in ants' nests at the Loggerheads, near Mold, North Wales.—Mr. J. R. Hodges, while hunting for *Coleoptera* on the 1st inst., found in a nest of *Formica flava* a small colony of the above *Aphid*, all clustered together under a mass of "cottony material" on a grass root. When they reached me all the cottony material had disappeared, and I found the *Aphids* and their larvæ walking freely about the tube. On making a microscopic examination of the insects, the antennæ were found to differ from the description and figures given by Mr. Buckton (Brit. Aph., vol. iii, p. 67, pl. cii, fig. 4, c, d); but Mr. Buckton, who has kindly verified the specimens, writes, "the articulation of the antennæ by itself is no certain guide. Indeed, in the specimens you sent to me, those organs differ."—R. NEWSTEAD, Chester : *April 11th*, 1893.

*Note on Hylastes angustatus*, Herbst.—Mr. Rye, in his list of "New British species of *Coleoptera* in 1864" (Entomologist's Annual, 1865), remarks as follows:—"I have taken a specimen of *H. angustatus* at Holm Bush, and have no doubt that it is mixed with *H. opacus* in collections." This is repeated by the Rev. W. W. Fowler in his "British *Coleoptera*" (v, p. 413), who states that it has also been recorded by Mr. Blatch from Mickleham. I may now add that I have recently taken three specimens of it at Woking, and have as many more from Esher; the latter were captured by myself in May, 1875, in company with *H. opacus*. These specimens have a short, but decided longitudinal channel in the middle of the rostrum at the base, and they are smaller and narrower than *H. opacus*, Er., with the sides of the prothorax more parallel behind. Bedel (Col. du Bassin de la Seine, vi, p. 390) also gives the same characters by which to distinguish *H. angustatus* and *H. opacus*. There seems to be a good deal of confusion amongst continental authors as to *H. opacus*. In the last edition of the European Catalogue (Heyden, Reitter, and Weise, 1891) the *H. opacus* of Erichson, Ratzeburg, and Thomson are each given as distinct, Thomson's species being placed as a synonym of *H. angustatus*, Herbst. The crude figure of *H. angustatus* given by Herbst would apply much better to *H. opacus*, Er., than to the narrower insect generally identified as his species. *H. opacus* varies somewhat in size, and some specimens are almost as narrow as *H. angustatus*, but it has the rostrum without trace of a median groove.—G. C. CHAMPION, Horsell, Woking : *April 17th*, 1893.

*Hæmonia appendiculata*, Panz., in Ireland.—On Saturday afternoon, April 8th, whilst collecting in the Royal Canal, Dublin, I was fortunate enough to take a specimen of this rare beetle about a mile above the Pin Mill, near Glasnevin. As the insect recovered from the effects of the cyanide I had it alive for some time on the following Monday, when Mr. G. H. Carpenter and Dr. R. F. Scharff, of the Science and Art Museum, kindly assisted me in the identification, by affording reference to standard works and comparison with specimens of the only other British representative of the genus, *Hæmonia Curtisi*, Lac. That there cannot be any doubt about the identification of the insect, I may mention that it was taken in fresh water, while *Hæmonia Curtisi* inhabits brackish; it differs in structure and markings from the last-mentioned species in the points mentioned by Fowler as distinguishing *Hæmonia appendiculata*, Panz. (= *equiseti*, Fabr.). It is of larger size (6½ mm.), the spines at the apex of the elytra are somewhat longer; posterior femora markedly clavate; apex of the femora and tibiæ, as well as the joints of the tarsi, tipped with blackish; the elytral striæ and punctures are also very strong. On comparison it agrees well with Curtis' figure, except that the pronotum is considerably paler, but this difference may be accounted for, as my specimen has the appearance of being fresh from the pupal state. It appears that this species occurs about May or June on the Continent; its appearance here at this early date may be attributed to the extraordinary mildness of the season. I am greatly pleased at being able to record this species as Irish, for I see it is a great rarity in England, the only records mentioned in the Rev. Canon Fowler's "British Coleoptera" are—"two specimens recorded by Stephens as taken near Windsor," and "one taken in flood rubbish near Burton-on-Trent."—J. N. HALBERT, 13, Nelson Street, Dublin: April 11th, 1893.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: March 20th, 1893. — Mr. G. H. KENRICK, Vice-President, in the Chair.

The following were exhibited:—By Mr. R. C. Bradley, insects from Sutton, including *Dicranura bifida*, *Lobophora hexapterata*, &c., also *Smerinthus tilia* from Hombury Park. By Mr. W. Harrison, *Amphidasis prodromaria* from Arley, &c. Mr. G. H. Kenrick read a paper on the black variety of *A. betularia*. He said that it was first described by Millière in 1859 from a specimen from Yorkshire; at that time it seems to have been a new and exceptional form; in 1869 Newman says of the species that *some* are black; since then it seems to have become increasingly common, until now we find quite a large proportion of the specimens taken or bred are black. Mr. Kenrick reviewed the various theories advanced to account for melanic forms, but dismissed them all as inadequate to account for the origin and increase of this one. He thought this might have come about in the following manner:—in all cases offspring more or less resemble their parents, sometimes one only, sometimes both; at times the tendency to follow one only is very strong. When one breeds *A. betularia*, if one mates a type specimen with a black one, one usually gets black offspring; therefore, it may be that a chance black variety has bred and perpetuated the form in this manner, most of its offspring being black, and these producing increasing numbers of black ones in like manner. This seems likely, as

the species is a very hardy one, and the blackness does not seem either to injure or assist the variety in any way, thus there would be no selection. The paper was discussed at length by the Rev. E. J. Nune, Messrs. G. T. Bethune-Baker, R. C. Bradley, and C. J. Wainwright.—COLBEAN J. WAINWRIGHT, *Hon. Secretary*.

CAMBRIDGE ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *February 17th*, 1892.—ANNUAL MEETING.

Mr. Gibson, of Queen's College, was elected a Member.

An Abstract of the Secretary and Treasurer's Report showed the Society to be in a very satisfactory condition; thirty-one Members were elected during the year, and the Meetings held fortnightly during the University Terms had been well attended, and the exhibits numerous and interesting. The following were elected Officers for the year:—President, Mr. F. V. Theobald, B.A., F.E.S.; Vice-President, Mr. A. M. Moss; Librarian, Mr. A. Jones; Secretary and Treasurer, Mr. Wm. Farren, F.E.S.; Council, Mr. G. H. Bryan, M.A., Mr. J. C. Rickard, Mr. M. White.

Mr. Rickard exhibited British specimens of *Saperda carcharias*, an unnamed *Necrophorus*, *Trichiosoma betuleti*, *Sirex gigas*, a dark variety of *Vespa vulgaris*, *Reduvius personatus* and its pupa, *Bombylius major*, and an unnamed species of *Tachina*; and from South Africa, two species of scorpions, "trap-door" spiders and their nests or galleries, and a Crustacean parasitic on fishes. Mr. Theobald, larva, pupa and imago in spirits of *Tipula maculosa*, and a number of specimens of a species of *Agromyza*, the larvæ of which had been found doing considerable damage, mining the leaves and shoots of chrysanthemums in greenhouses.

March 3rd, 1893.—Mr. F. V. Theobald, President, in the Chair.

Mr. W. H. Seyfang, of St. Peter's College, was elected a Member.

Mr. Moss exhibited a box of *Lepidoptera*, most of which he had "forced" during January; among others were specimens of *Papilio Machaon*, *Smerinthus tilia*, *Notodonta ziczac*, and *Bombyx rubi*, on which latter he contributed notes. Mr. Theobald, some larvæ of an unknown species of *Tipula* in rotten wood from Gloucestershire, microscopic slides and photos of No. 1, "a larva of *Simulium*," No. 2, "a larva of a new *Tanytus*," and No. 3, "an undescribed Dipteron and its pupa." Mr. Jones, a series of *Agrotis exclamatoria*, and its varieties, *costata*, Tutt, *plaga*, St., *pallida*, Tutt, *lineolatus*, Tutt, and *juncta*, Tutt. Mr. Farren, *Papilio demoleus*, taken in South Africa by Mr. J. C. Rickard, and varieties of *Papilio Machaon* from Wicken Fen, and remarked on the phylogenetic value of certain corresponding markings; a bred series of *Orotena extimalis*, Scop., = *margaritalis*, Schiff.; and representative species of *Pterophori*, *Crambi*, *Tortrices*, and *Tinea*. Mr. Bryan read a paper on "Relaxing and Setting Insects," and exhibited appliances and drawings in illustration; a long discussion ensued, Messrs. Theobald, Jones, Farren, Bull, White, and others taking part.—WILLIAM FARREN, *Hon. Secretary*.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *April 10th*, 1893.—Mr. S. J. CAPPER, F.L.S., F.E.S., President, in the Chair.

Mr. H. W. Bowler, of Lisbon Road, Broad Green, was elected a Member of the Society.

Mr. John Watson read a paper, entitled, "Notes on three hybrid silk-moths—The author, in speaking of these hybrids, stated that he had microscopically examined the female hybrids, and found no trace of an ovary; he also stated that the hybrid larvæ spun double the weight of silk in forming the cocoon than either of the parents." Dr. H. H. Corbett read a paper, entitled, "Notes on the *Lepidoptera* of Doncaster." He enumerated the *Lepidoptera* taken by him around Doncaster, and drew attention to the local variation of several species he exhibited and described—*Lithocolletia cerasicolella*, a species new to the British list which had just been added by himself. Mr. Watson exhibited *Papilio Elwesii* (female) from Central China, which, as far as he knew, was at present unique. The President exhibited *Papilio Machaon*, and Mr. Newstead a collection of *Coccidæ* formed by Miss Tomlin from Madras.—F. N. PIERCE, *Hon. Sec.*, 7, The Elms, Dingle, Liverpool.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: March 23rd, 1893.—J. JENNER WEIR, Esq., F.L.S., President, in the Chair.

Mr. R. Adkin exhibited the following species of *Diurni* from Sutherlandshire, viz., *Pieris brassicae*, L., *P. napi*, L., *Argynnis Selene*, Schiff., *A. Euphrosyne*, L., *A. Aglaia*, L., *Epinephele Janira*, L., *Cænonympha Typhon*, Rott., and *Thecla rubi*, L., and commented on the similarity of the forms shown to those occurring in the south of England. Mr. H. Moore exhibited an example of the transference of the scales to paper of an Indian butterfly of the *Nymphaline* group. Mr. W. Mansbridge stated that the specimen he previously exhibited as *Hybernia defoliaria*, Clerck, was a melanic form of *H. aurantiaria*, Esp.; he also exhibited dark *Odontopera bidentata*, Clerck, from Forres, N.B., a strikingly light specimen of *Hybernia leucophaearia*, Schiff., and a series of *Polia chi*, L., var. *suffusa*, from Horsforth, near Leeds, darker than those from either Bradford or Huddersfield, and therein differing from Mr. Tutt's experience as previously expressed. Mr. H. A. Auld exhibited a species of *Cassida* from Fort White, Upper Burmah. Mr. J. M. Adye exhibited two living examples of *Moma Orion*, Esp. (forced), bred from New Forest larvæ of 1892. This exhibit was made in metal boxes, and a discussion ensued thereon. In further illustration of the phenomena of mimicry, Mr. Jenner Weir exhibited *Nebroda Echaia*, var. *Jacksoni*, which was closely mimicked by both a *Nymphaline* and *Papilionine* species, viz., *Hypolimnas mima* and *Papilio Cenea* ♀, the latter species being the southern form of *Papilio Merope*, which was remarkable for the polymorphic and polychromatic varieties of the female. Mr. Weir also exhibited two other similar instances, species from Western Africa and Northern India, being also mimicked by both *Nymphaline* and *Papilionine* species, and made some interesting remarks thereon.—F. W. HAWES and H. WILLIAMS, *Hon. Secs.*

ENTOMOLOGICAL SOCIETY OF LONDON: March 29th, 1893.—HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

Mr. Ernest Swinhoe, of Avenue House, Oxford, was elected a Fellow of the Society.

Mr. G. C. Champion exhibited, for Mr. A. E. Stearns, a living specimen of a luminous species of *Pyrophorus*, which had been found in an orchid house at Dorking. It was supposed to have emerged from the roots of a species of *Cattleya* from Colombia.



Mr. A. H. Jones exhibited living full grown larvæ of *Charaxes Janius*, found by Mr. Frederic Raine, at Hyères, feeding on *Arbutus unedo*.

Surgeon-Captain Manders exhibited a series of *Lycæna Theophrastus* from Rawal Pindi, showing climatal variations, the rainy season form being of darker coloration, and larger than that occurring in the dry season. The ground-colour of the former on the under-surface was markedly white with deep black strisæ; in the latter form the ground-colour was distinctly reddish, and the marking reduced to reddish lines. He said that the latter form had been described as *L. alteratus*. Mr. F. Merrifield mentioned that Dr. Weismann had now established that the colouring of *Chrysophanus Phlaas* in different climates or seasons, though in part attributable to the actual temperature, was in part constitutional.

Mr. S. G. C. Russell exhibited a beautiful variety of *Argynnis Selene*, taken near Fleet, Hants.; two varieties of *A. Selene* from Abbot's Wood, Sussex; typical specimens of *A. Selene* and *A. Euphrosyne* for comparison; and a remarkable variety of *Pieris napi* from Woking.

Mr. C. J. Gahan exhibited a microscopic preparation of the antenna of the larva of a beetle (*Pterostichus*), for the purpose of demonstrating the sensory nature of the so-called "appendix" of the antenna. Since he wrote a note describing this structure, a short time ago, he found that Professor Beauregard had already suggested its sensory character, and was inclined to believe that it was an auditory organ.

Mr. H. Goss exhibited a specimen of *Trogus lapidator*, Grav., believed to have been bred from a larva of *Papilio Machaon* taken in Norfolk by Major-General Carden. Mr. Goss stated that he sent the specimen to the Rev. T. A. Marshall, who said it was a well-known parasite of *P. Machaon* on the Continent, but not proved to exist in the United Kingdom. Mr. Merrifield said he knew this parasite, and had bred several specimens of it from pupæ of *P. Machaon* received from Spain.

Colonel Swinhoe read a paper, entitled, "The *Lepidoptera* of the Khasia Hills. Part I." A long and interesting discussion ensued, in which Mr. Elwes, Mr. Hampson, Colonel Swinhoe, and others took part. Mr. W. Bartlett Calvert communicated a paper, entitled, "New Chilian *Lepidoptera*." Mr. J. W. Shipp communicated a paper, entitled, "On a New Species of the Genus *Phalacrognathus*."

April 12th, 1893.—FREDERIC MERRIFIELD, Esq., Vice-President, in the Chair.

Sir John Talbot Dillwyn Llewelyn, Bart., exhibited a number of specimens of *Lepidoptera*, *Coleoptera* and *Hymenoptera*, all caught in Glamorganshire. The *Lepidoptera* included two remarkable varieties of *Vanessa Io*, both obtained from the same brood of larvæ, from which the usual eye-like spots in the hind-wings were absent; varieties of *Arctia menthastris*; a long series of melanic and other forms of *Boarmia repandata* and *Tephrosia crepuscularia*; and bleached forms of *Geometra papilionaria*. The *Coleoptera* included specimens of *Prionus coriarius*, *Pyrochroa coccinea*, *Otiorynchus sulcatus*, and *Astynomus adilis*, which latter Sir John Llewelyn stated had been handed to him by colliers, who obtained them from the wooden props used in the coal mines, made out of timber imported from the Baltic. Mr. Merrifield, Dr. Sharp, Mr. Bower, and Mr. Stevens made some remarks on the specimens.

Sir John T. D. Llewelyn enquired whether the name of the moth which had a sufficiently long proboscis to fertilize the large Madagascan species of *Orchis*, *An-*

*gracum sesquipedale*, was known. Mr. C. O. Waterhouse stated that the collections received at the British Museum from Madagascar had been examined with the view to the discovery of the species, but up to the present it had not been identified.

Mr. H. Goss exhibited, for Mr. Frank W. P. Dennis, of Bahia, Brazil, several nests of trap-door spiders containing living specimens of the spider, and read a communication from Mr. Dennis on the subject. Several photographs of the nests and the spiders were also exhibited. It was stated that Mr. Dennis had found these nests at Bahia in one spot only in a cocoa-nut grove close by the sea.

Mr. McLachlan read a paper, entitled, "On species of *Chrysopa* observed in the Eastern Pyrenees; together with descriptions of, and notes on, new or little-known Palearctic forms of the genus." The author stated that the species referred to in this paper had been observed by him in the Eastern Pyrenees in July, 1886, when staying with Mons. René Oberthür. After alluding to the nature of the district, and its capabilities from an entomological point of view, the paper concluded with descriptions of certain new palearctic species of the genus. Dr. Sharp, who said he was acquainted with the district, and Mr. Merrifield made some remarks on the paper.—H. Goss, *Hon. Secretary*.

## A SYNOPSIS OF BRITISH *PSYCHODIDÆ*.

BY THE REV. A. E. EATON, M.A., F.E.S.

(continued from page 84).

### SPECIES OF THE 1ST SECTION OF *PERICOMA*

(Analytical Key, Steps 4a, 3, 1).

- 1— Wings whitish or greyish, with the tip and one or two transverse zig-zag fasciæ blackish; tarsi black at the ends. Similar in general aspect to certain species of the 2nd Section of the genus ..... 2.
- a — Wings brownish or black-brown, varied near the base with some light coloured hair-spots just before the forks, and again with some smaller ones arranged in a transverse angulated series, about midway between the former spots and the tip of the wing; tarsi blackish, with a light gloss at the apical margins of the joints, and also sometimes on the dorsum of the 2nd joint, and at the base of the 1st joint ..... 5.
- 2— (1) Hinder tibiæ with blackish hair at the tips; anterior tibia in ♂ less distinctly blackish at the extreme tip externally than in the ♀; tarsi impure whitish, with the last two joints in ♂, or last three in ♀, blackish. Apical fringe of the wing whitish from about the posterior branch of the radius to the anterior branch of the pabrachial nerve; posterior fringe blackish, sometimes overlain with whitish hairs in two places; radius in ♂ meets the anterior basal cell at a point distant very little more than the cell's apical width from the cell's end. Superior ♂ appendages 2-jointed; basal joint stout, rounded externally, concave; 2nd joint uncinatè, dilated at the base, folding down into the concavity of the former. Wing, 3 to 4 mm. long ..... 1. *P. palustris*, Meigen.
- a — Hair at the tips of the tibiæ light coloured, or else not darker than elsewhere ..... 3.

- 3—(2a) Legs with glossy, impure whitish hair; plantar surface throughout and in ♂ the base of the 1st joint, usually at least the base of the 2nd joint, the last two joints in the fore tarsus, and the last three joints in the hinder tarsi; in ♀, the base of the 1st and the whole of the last four joints in every tarsus black-brown. Wing neuration light coloured in the intervals between the dark fasciæ; radius in ♂ meets the anterior basal cell at a distance from the cell's end less than the cell's apical width. Apical joint in the superior ♂ appendages rounded externally, flattened beneath, and subtruncate at its sub-concave extremity; close to its basal articulation, beneath, arises a staff-like process, suddenly flexed at the base, and barbed on one side with testaceous bristles at the tip. Wing, 3 to 3·25 mm. long ..... 4. *P. compta*, sp. nov.
- a — Tibiæ wholly with whitish hair, as are also the 1st and 2nd joints in the ♂, or the 1st joint in the ♀, tarsus dorsally; the last three joints in the ♂ tarsus, or four in the ♀, black or grey ..... 4.
- b — Legs darker; 1st and 2nd joints in the fore tarsus, 1st joint in the hinder tarsi, glossed dorsally with light fawn colour or whitey-brown, leaving the last three joints in the fore tarsus and the last four joints in the hinder tarsi blackish. Wing neuration dark throughout; radius in ♂ meets the anterior basal cell at a distance from the cell's end subequal to the cell's apical width. Apical joint in the superior ♂ appendages globular, armed at its inferior base with a long, curved, nude, black spur. Wing, 3 to 3·5 mm. long. .... 5. *P. extricata*, sp. nov.
- 4—(3a) Fringe of the wing's apex glossed on the shorter hairs near the margin with light yellowish, from the posterior branch of the radius to the præ-brachial nervure, and glossed on the longer hairs with impure whitish a very little farther in both directions, the margin of the wing remaining blackish. In the ♂ wing the radius ends in the cross vein that closes the anterior basal cell. Wing, 3 to 3·5 mm. long .... 2. *P. mutua*, sp. nov.
- a — Fringe of the wing's apex whitish from about the anterior branch of the radius to the posterior branch of the pabrachial nervure. Superior ♂ appendages nearly as in the preceding species. Anterior spiracular appendages of the ♂ thorax furnished each with a long curved lock of hair; the appendage itself rarely protruded, but, when it is so, sub-cylindrical. Wing, 2·25 to 2·5 mm. long ..... 3. *P. cognata*, sp. nov.
- 5—(1a) Pubescence on the ♂ notum black and velvety anteriorly, rising behind into a transverse crest immediately before a light ochreous transverse fascia close to the wings. Frons in the ♂ crowned conspicuously with a copious tuft of long, snow-white hair, set off with black. Wing, 3·5 to 4 mm. long ..... 6. *P. subila*, Meig.
- a — Pubescence on the ♂ notum rounded in contour anteriorly, and not shortened to a velvety pile in front; that on the pronotum flavescent, followed on the mesonotum by yellowish-brown. Frontal tuft in ♂ inconsiderable; the scantier snow-white hairs, with change of posture, become duller or of a yellowish tint, with a few black streaks interspersed, and the hair on the vertex is light brownish, or brownish-yellow, mixed with black. Wing, 3 to 3·5 (Loch Maree, 2·25 to 3) mm. long... 7. *P. trivialis*, sp. nov.

## SPECIES OF THE 2ND SECTION OF PERICOMA

(Analytical Key, Steps 3a, 2, 1).

- 1— Fringe of the wing's apex light coloured or whitish; that of the posterior margin uninterruptedly dark ..... 2.
- a — Fringe of the wing's apex whitish or cream colour; that of the posterior margin dark, with a patch of white in at least one place. Wing, ovate, or elongate-ovate, subacute ..... 5.
- 2— (1) Posterior branch of the pobrachial nervure linked by a perpendicular cross veinlet to the stem near its abrupt inner extremity. Legs dark coloured, with light coloured hair at the apical margins of the tibia and of the joints of the tarsus ..... 3.
- a — Posterior branch of the pobrachial nervure either continued to the stem, or linked at its inner extremity to the stem by an oblique or curved cross veinlet ..... 4.
- 3— (2) Superior ♂ appendages apparently 1-articulate at first sight, subglobular and slightly compressed, with an acicular spine directed towards the tip of the penis; this spine, the 2nd joint, is curved sharply and tortuously towards its origin in the inferior base of the spheroid 1st joint, and where it begins to be straight, is propped up by a short laminar lobe directed backwards, which arises in close proximity to the upper part of the inner base of the spheroid. Marginal dark spots at the ends of the wing-nervures less distinct than in the next species. Wing, 3 to 3.5 mm. long ..... 8. *P. neglecta*, sp. nov.
- a — Superior ♂ appendages obviously 2-articulate, geniculate; 1st joint stout, longer than broad; 2nd joint elongate, subulate, and curved. Marginal hair-spots at the ends of the wing-nervures blackish, small, but distinct. Wing, 3 to 3.75 mm. long ..... 9. *P. canescens* (Meig. ?), Schiner.
- 4—(2a) Tibia and last three joints in the tarsus dark coloured or blackish; 2nd tarsal joint and the base, if not all, of the 1st joint glossed dorsally with whitish. Fringe of the wing's apex cream colour from just before the cubitus to just within the posterior fork; small flaxen hair-spots at the ends of all the nervures, except the cubitus and the præbrachial. Basal joint in the superior ♂ appendages tapering upwards; 2nd joint longer, uncinatè, dilated in its basal half and then pointed. Wing, 2 to 2.5 mm. long ..... 10. *P. exquisita*, sp. nov.
- a — Tibia and tarsus from most standpoints blackish, with a whitish gloss on the extreme apical margin of the tibia, and of the next one or two joints in the tarsus; but from certain directions the last three tarsal joints appear black, and the first two take dorsally a dull whitish gloss in the ♂, or a dull dark greyish gloss in the ♀. Fringe of the wing's apex cream colour from just before the cubitus to the anterior branch of the pobrachial nervure. The flaxen hair-spots in this species are less distinct than their counterparts in *P. exquisita*. Basal joint in the superior ♂ appendages stout, rounded, compressed; 2nd joint short, uncinatè, folding down obliquely into the former. Wing, 2.25 to 2.75 mm. long. .... 11. *P. fallax*, sp. nov.

- B** — Anterior tibia wholly with whitish hair; posterior tibiae with blackish hair at the tips; last three joints in the ♂ tarsi, and three or four in the ♀ tarsi, black or grey; the preceding joints or joint with whitish hair dorsally; the sole often blackish. Fringe of the wing's apex whitish from about the anterior branch of the radius to the anterior branch of the pabrachial nervure. Superior ♂ appendages nearly as in *P. fallax*. Wing, 2.75 to 3 mm. long ..... 12. *P. gracilis*, sp. nov.
- 5**—(1a) Fringe of the wing more black than white, with a white patch at the posterior margin between the postcal and anal nervures; that of the wing's apex whitish from about the posterior branch of the radius to just within the pabrachial fork. Tibiae with blackish hair at the tips; last three joints in the tarsus blackish-grey, the first two with a lighter gloss, or impure whitish. Superior ♂ appendages nearly as in *P. fallax*. Wing, 2 to 2.5 mm. long ..... 13. *P. blandula*, sp. nov.
- a** — Fringe spaced in two places with white on the posterior margin, exterior to the fold of deflection, in the mature fly; the nearer patch sometimes absent in junior specimens ..... 6.
- (5a) Fringe of the posterior margin white between the postcal and anal nervures, and again for a very narrow space just on the inner side of the end of the axillar nervure, three well-marked spaces remaining black, viz.:—two black spaces between the fold of deflection and the end of the anal nervure, and a third black space extending from the postcal to the anterior branch of the pabrachial nervure. Tibiae with blackish hair at the tips; last three joints in the tarsi blackish, the first two joints glossed with impure whitish. Terminal joint in the superior ♂ appendages deflexed, dilated at the base ovoidally, and produced at the tip into a long subulate point. Wing, 2.25 to 2.75 mm. long...
14. *P. trifasciata*, Meigen.
- z** — Fringe of the posterior margin white between the anal and axillar nervures, and again for nearly an equal distance opposite the basal half of the axillar nervure, leaving two well-marked spaces, and sometimes also one or two narrow streaks, black, viz.:—a black streak close to the fold of deflection; a space opposite the outer half of the axillar nervure; another space extending from about the end of the anal to the posterior branch of the pabrachial nervure; and sometimes a streak of varying breadth between the anterior branch of the pabrachial and the end of the præbrachial nervure. Tibiae with blackish hair at the tips: last four joints in the tarsus black, the 1st joint glossed with impure whitish. Terminal joint in the superior ♂ appendages subulate, slightly curved, subequal in length to the basal joint. Wing, 2 to 2.5 mm. long. ...
15. *P. pulchra*, sp. nov.

## SPECIES OF THE 3RD SECTION OF PERICOMA

(Analytical Key, Steps 4, 2b, 1).

- 1— Wing pointed at, or very near, the end of the cubitus; fringe dark, excepting about the wing's apex, and in one place on the posterior margin;

radius forked distinctly before the end of the axillar nervure; pobrachial forked almost opposite the said end, a little before the middle of the wing. Antennæ short, hardly reaching to the base of the wing; in ♂, 15-jointed, thickened considerably with scales on the first three joints, and beset with spreading verticillate hairs on the other twelve joints; 1st joint elongate, subclaviform, slightly compressed; 2nd joint stout, subglobular; 3rd joint less stout, oval, furnished anteriorly near the tip with a peculiar looped appendage (which is clad with scales) lying alongside of the next two joints with its end outwards; when denuded and highly magnified this appendage is resolvable into a ribbon-like fascicle of long and seemingly agglutinated testaceous hairs; the succeeding joints for the most part moniliform, with fusiform-ovoid nodules at short intervals. Antennæ in ♀ 16-jointed; the first three joints somewhat as in the ♂, but shorter, and without an appendage to the 3rd joint, which is narrower in this sex; the other thirteen joints, mostly ovoid and near together, beset with spreading verticillate hairs ..... 2.

- a — Wing either pointed at, or very near, the end of the præbrachial nervure, or else subobtusate between this and the end of the cubitus; fringe dark, sometimes with a whitish gloss in the neighbourhood of the wing's apex; anterior basal cell short, or of unexceptional proportions. Antennæ in both sexes 16-jointed; 1st and 2nd joints clad with dispersed scales and hairs; the other fourteen joints with verticillate hairs ..... 3.
- 2—(1) Anterior basal cell almost one-third the extreme length of the wing, met by the radius at a distance equal to three times the cell's apical width from its end; stem of the pobrachial fork shorter than the difference in length of the two basal cells, and not quite two-thirds the length of the stem of the radius. Legs black and white; some white scales at the tips of the tibiæ and of the first three tarsal joints; a whitish gloss on the tarsus dorsally from near the tip of the 1st joint to the tip of the 3rd or (from certain standpoints only) 4th joint. Wings black-brown, with whitish markings; a dark basal patch or fascia, saliently angulated at the anterior basal cell; a moderately broad, transverse, angulated, whitish fascia before the forks, which does not enter the posterior fringe; dark markings corresponding with the median fascia and apical space in *P. trifasciata*, confluent extensively along the cubitus, præbrachial and the pobrachial fork; whitish markings representing a broken and somewhat zig-zag further fascia expanded moderately at the ends, tending to produce an ocellated spot at the posterior margin and fringe that is pupillated at and near the end of the postical nervure, and another less distinctly marked out on the costa, not entering the fringe, opposite the former and imperfectly pupillated towards the end of the anterior branch of the radius. Wing-margin dark, varied with white tufts of declinate hair at the ends of the subcosta, radial and pobrachial branches, postical and anal nervures, fringe dark, glossed with a light colour from about the end of the cubitus to the posterior branch of the pobrachial, and again from about the end of the postical to just beyond the end of the anal. Basal joint in the superior ♂ appendages stout, oblong; 2nd joint about one and a

half the length of the former, very slender and claw-like, slightly decurved towards the tip. Wing, 2.25 to 3 mm. long..

16. *P. ocellaris*, Meigen.

- Anterior basal cell not quite three-tenths the length of the wing, met by the radius at a distance of one and a half its own apical width from its end; stem of the pobrachial fork almost twice the length of the difference between the two basal cells, and one and one-tenth the length of the stem of the radius. Legs chiefly black and white; femur and tibial fringes glossed with whitish; tibia blackish at the base and towards the tip, but with some white scales at the tip; tarsus black or greyish-black, with the base and tip of the 1st joint and the 2nd joint entirely white. Wings dark brownish-grey, with whitish markings, differing from *P. ocellaris* in the outer border of the dark basal patch being transversely curved; nearer whitish fascia narrower, indented at the radial fork, and less distinctly defined between the pobrachial and anal nervures than elsewhere. The markings representing the further whitish fascia of *P. trifasciata*, placed in a dislocated series, leave the dark median fascia more distinctly in the form of a broad Y, and the spot at the posterior margin extending into the fringe is not ocellated and is smaller than in *P. ocellaris*. Wing-margin dark, interrupted by white tufts of hair only at the ends of the subcosta, radial branches, postical and anal nervures; and there is no appearance of an ocellated spot at the costa; fringe dark, glossed with a light colour from about the posterior branch of the radius to the posterior branch of the pobrachial, and again from just before the anal to the end of the axillar nervure. Wing, 3 mm. long.

17. *P. Dalii*, sp. nov.

- (1a) Radius forked distinctly before the end of the axillar nervure ..... 4.
- Radius forked beyond the end of the axillar nervure; pobrachial forked beyond that. Apex of wing ellipsoidal, rounded between the cubitus and the præbrachial nervures ..... 5.
- Radius forked opposite, or almost exactly opposite the end of the axillar nervure. Antennæ in ♂ reach nearly to the wing's middle; the first two joints short and moderately stout, the other fourteen moniliform, mostly with globular nodules at long intervals ..... 7.
- (3) Wing pointed exactly at the end of the præbrachial nervure. Antennæ short, in ♂ hardly reaching to the insertions of the wings (shorter in ♀); the first two joints stout and thickened with scales, some of them spreading near the tip of the 1st and the middle of the 2nd joint, and others projecting as a tuft of spinules from the upper extremity of the 2nd joint; the other fourteen joints moniliform, mostly with globular nodules at rather short intervals and widely cupuliform verticils of hair; basal joint (denuded of scales) compressed, about thrice as long as broad; 2nd joint obovoid, almost one-half the length of the 1st; 3rd joint much smaller, globular, sessile. Radius forked very shortly before the pobrachial fork, and linked to the anterior basal cell at a distance hardly less than the celi's apical width from the cell's end. Thorax in ♂ furnished

anteriorly on each side on a level with the insertion of the antennæ with a clavate, scale-clad appendage. Wings greyish-black or black-brown, with a large basal patch, a spot at the end of the axillar nervure, and a narrow transverse fascia from opposite the end of the subcosta to the end of the anal nervure, of whitish and for the most part bristling hairs. Fringe glossed like the dark fringes in the last two species. Wing, 3 to 4 (Chesil, Portland, 1·8) mm. long ..... 18. *P. notabilis*, sp. nov.

- a* — Apex of wing ellipsoidal, subacute at or close to the end of the præbrachial nervure. Antennæ in ♂ reach to a little beyond the insertions of the wings; the first two joints moderately stout, short; the other fourteen joints moniliform with subglobular nodules, mostly at rather long intervals and with cupuliform verticils of hair; basal joint (denuded of scales) compressed, rather longer than broad, tapering downwards slightly; 2nd joint globular, contiguous with the 3rd, and nearly as stout as the 1st. Radius forked opposite the pobrachial fork, ending in the anterior basal cell at a distance from the cell's end equal to the cell's apical width. Wing spotless, dark, 2·5 to 3 mm. long

19. *P. ambigua*, sp. nov.

- 5 — (3a) Subcosta ends opposite the end of the postical nervure or very nearly so. Antennæ in ♂ almost as in *P. ambigua*, but with shorter intervals between the nodules. Radius meets the anterior basal cell at a distance from the cell's end rather less than the cell's apical width. Wing spotless, dark, 2 to 2·5 mm. long ..... 20. *P. decipiens*, sp. nov.

- a* — Subcosta ends opposite the end of the anal nervure ..... 6.

- 6 — (5a) Antennæ in ♂ reaching to the base of the wing; first two joints moderately stout, the former oblong, the second globular, both densely clothed with appressed hairs and scales, but the first with spreading hair in front; the other fourteen joints moniliform with globular nodules at moderate intervals and (excepting the last, which is closed) cupuliform verticils of hair, each verticil (with the same exception) containing a pair of long chitinous compressed bristles inserted on the nodule near each other with the hairs, and widely coiled subspirally within the verticil in opposite directions. The ending of the radius is rather less than the cell's apical width from the end of the anterior basal cell. Wing blackish-grey, fading to dark brownish-grey, with a black hair-spot at the radial fork, opposite another on the posterior branch of the pobrachial and the postical nervures, and also with a few black hairs near the end of the axillar nervure; the bristling hairs from certain standpoints become whitish-grey; fringes match the disc, except in the apical region, where the hairs are glossed towards their tips with impure whitish, their roots remaining dark. Wing, 2 to 2·5 mm. long ..

21. *P. soleata* (Haliday, MS.), Walker.

- a* — Antennæ in ♂ reaching nearly to the middle of the wing; the first two joints moderately stout, the 1st with more hairs than scales, some of them spreading in front, elongate, claviform, slightly compressed, about one-sixth the length of the antennæ; 2nd joint globular, with appressed



scales; the other fourteen joints nearly as in *P. ambigua*. The ending of the radius is extremely close to the cross vein closing the basal cell. Wing of a light colour, clouded with grey, and with four blackish hair-spots—one at the radial fork a little beyond one on the posterior branch of the pabrachial and the postcal nervures, another at the end of the axillar, and another (less distinct) at the end of the mediastinal nervure.

Wing, 1·75 to 2 mm. long ..... 22. *P. consors*, sp. nov.

- 7 — (3b) Fork of the pabrachial nervure distinctly beyond both the radial fork and the end of the axillar nervure. Antennæ in ♂ reach nearly to the middle of the wing; the first two joints short, moderately stout, clothed with appressed scales, but with a few hairs spreading in front of the 1st joint; 1st oblong; 2nd globular, contiguous with the next; the other fourteen joints moniliform, with oblate-spheroidal nodules, mostly at rather wider intervals, and many with shallow, some with deeper, cupiliform verticils of hair. Wing grey, with blackish hairs towards the ends of the nervures and nine small black hair-spots in the disc; wing's apex very near the end of the præbrachial nervure. Wing, 2 mm. long  
23. *P. labeculosa*, sp. nov.

„ a — Fork of the pabrachial nervure almost in line with the radial fork and the end of the axillar nervure ..... 8.

- 8 — (7a) Wing pointed exactly at the end of the præbrachial nervure. Antennæ in ♂ reach nearly to the middle of the wing; the first two joints very short, moderately stout, both of them globular and densely clothed with slightly spreading scales, the other fourteen joints moniliform, with nodules at moderate distances, and verticils, all but the last (which is ovoid and closed) cupiliform, of very closely serried hair, containing each a pair of spiral hair-like bristles, homologous with those of *P. soleata*. Wing grey, with a whitish patch of bristling hair at the base, followed by a dark transverse band; also with a whitish hair-spot at the end of the axillar nervure, and an irregular whitish transverse fascia extending from just beyond the end of the subcosta to the end of the anal nervure. Wing, 2·8 mm. long ..... 24. *P. advena*, sp. nov.

α — Wing subobtuse between the præbrachial and cubital nervures. Antennæ in ♂ nearly as in *P. ambigua*, but with the basal joint about three times longer than broad and the last two or three nodules rather nearer together. Wing dark grey, with a patch of whitish bristling hair at the base, followed directly by three black hair-spots standing in line transversely, viz., one at the radial fork, one on the posterior branch of the pabrachial and on the postcal nervures, and another at the end of the axillar nervure. Wing, 2 to 2·7 mm. long . 25. *P. morula*, sp. nov.

#### SPECIES OF THE 4TH SECTION OF PERICOMA.

(Analytical Key, Steps 6, 5a, 2a, 1).

- 1 — Radius meets the cubitus or is linked by a cross-vein to it at a distance from the anterior basal cell, less than the cell's apical width. Antennæ 16-jointed in both sexes, reaching in ♂ to the base of the wing; the last two nodules distant from each other ..... 2.

- „ *a* — Radius and cubitus confluent at a distance from the anterior basal cell equal to or greater than the cell's apical width. Antennæ in ♂ 15-jointed, or apparently so; the 16th joint, when present, in close contact with the 15th..... 3.
- 2 — (1) Radius forked considerably before the pobrachial fork, which fork is opposite the end of the axillar nervure. First two joints in the ♂ antennæ short, with slightly spreading hair and scales, the 1st obovoid, the 2nd globular; the other fourteen moniliform, with globular, shortly pubescent nodules at moderate intervals, and rather wide cupiliform verticils of hair. Wing dark grey or brownish-grey, with an irregular, narrow, blackish, transverse fascia, extending from the end of the axillar nervure to the anterior branch of the radius, containing two black hair-spots (one on the branches of the radius, and the other on the posterior branch of the pobrachial and the postical nervure), and preceded by a third hair-spot just beyond the middle of the axillar nervure; at the fork of the radius, opposite this last spot, is one less distinct; at the ends of the nervures by the posterior margin are declinate black hairs. Wing, 2.25 to 3 mm. long ..... 26. *P. fratercula*, sp. nov.
- „ *a* — Radius forked very little before or subopposite the pobrachial fork, and very little beyond or subopposite the end of the axillar nervure; pobrachial fork just out of line with them. Antennæ in ♂ as in *P. fratercula*. Wing dark brownish-grey, with seventeen small black hair-spots arranged in five transverse rows; fringes chequered with fawn colour (cervinous) and greyish-black in nine places. Length, 2 to 3 mm. .... 27. *P. ustulata* (Haliday MS.), Walker.
- 3 — (1a) Radius forked very little beyond the pobrachial fork, subopposite the end of the axillar nervure, and confluent with the cubitus about as far from the anterior basal cell as the cell's maximum width. Antennæ in ♂ actually 16-jointed, reaching to the base of the wing; first two joints densely clothed with scales that spread inwards and upwards, the 1st oblong, somewhat compressed, thrice as long as broad; 2nd joint oval; the other joints moniliform with globular nodules and cupuliform verticils of hair. Wing blackish, with fringes to match (these glossed with brownish), and two obliquely transverse darker interrupted fasciæ or series of hair-spots—one across the forks from the end of the axillar nervure, the other, at the end of the region of bristling hair, extending from the end of the postical nervure to the anterior branch of the radius; in the apical region are blackish decumbent hairs towards the ends of the nervures. Wing, ♀, 2.25 to 2.5 mm.; ♂, less ..  
28. *P. caliginosa*, sp. nov.
- „ *a* — Radius forked shortly beyond the pobrachial opposite the interval between the ends of the axillar and anal nervures, and confluent with the cubitus rather farther from the anterior basal cell than the cell's apical width; pobrachial fork nearly in line with the radial fork and the end of the axillar nervure. Antennæ in ♂ 15-jointed, reaching to the base of the wing: first two joints clothed with appressed scales, short, the 1st

obovoid, the 2nd subglobular; 3rd elongate, subequal in length to the two former combined, stout and cylindrical in its basal two-thirds, and then tapering; the other twelve joints moniliform, with oval nodules at rather wide intervals and subcompressed campanulate verticils of hair—the hairs sometimes incurved at the tips in life. Wings blackish-grey, with fringes to match, except the apical fringe, which is glossed with white from about the posterior branch of the radial to the anterior branch of the pabrachial nervure; within the region of bristling hair are the following whitish markings:—a small patch at the base of the wing, a tuft shortly before the end of the axillar nervure, and a rather broad, straight, transverse band, in which are both the forks, on the customary nervures, about the middle of the wing. Length, 2 to 2·5 mm....

29. *P. incerta*, sp. nov.

- „ ♂ — Radius forked considerably beyond the pabrachial fork, opposite the end of the anal nervure, and confluent with the cubitus at a distance beyond the anterior basal cell subequal to twice the cell's apical width; pabrachial nervure forked very little beyond the end of the axillar nervure. Antennæ in ♂ actually 16-jointed, reaching to the base of the wing; first two joints very short, clothed with scales and some hair, the 1st as long as broad, subcylindrical, the 2nd sphaeroidal, stouter, contiguous with the much smaller globular 3rd joint; joints 3—16 moniliform with globular nodules (the last two nodules contiguous and approximated to the antepenultimate, the others at rather distant intervals), beset with cupuliform verticils of hair; each verticil, excepting the last or last two, contains a pair of chitinous bristles, inserted with the hairs, curved half a spiral turn in opposite directions, the spiral more extended or more oblique than in *P. soleata*. Wings light brownish-grey, with glossy fringes to match, and with a conspicuous pair of rounded spots (one at the radial fork, the other on the branches of the pabrachial and on the postical nervure near the pabrachial fork), and a short longitudinal streak near the base of the præbrachial nervure, blackish; the hairs towards the ends of the longitudinal nervures also (but less distinctly) blackish. Wing, 2 to 2·25 mm. long ..... 30. *P. revisenda*, sp. nov.

#### SPECIES OF THE 1ST SECTION OF PSYCHODA.

(Analytical Key, Steps 7, 6a, 5a, 2a, 1).

- Wings spotless ..... 2.
- „ a — Wings spotted ..... 4.
- 2 — (1) Inferior ♂ appendages armed each with three tenacular spinules. Pubescence of thorax light brown; that of the abdomen dense and brownish. Wing, 2 to 2·5 mm. long.....1. *Ps. lucifuga* (Hal. MS.), Walker.
- „ a — Inferior ♂ appendages each with one tenacular spinule ..... 3.
- 3 — (2a) Basal joint in the superior ♂ appendages elongate, one-third longer than the terminal joint. Wing, 1·5 to 2·25 mm. long...

2. *Ps. phalænoides*, L.

„ a — Basal joint in the superior ♂ appendages moderately stout, subequal in length to the terminal joint. Wing, 1.25 to 2 mm. long...

3. *Ps. albipennis*, Zett.

4 — (1a) Wing spots marginal, six or seven in number at the ends of nervures. Wing, 2 to 3 mm. long .....4. *Ps. sexpunctata*, Curt.

„ a — Wing spots ten, in three irregular transverse series; the extreme point also dark sometimes. Wing, 2.25 mm. long...5. *Ps. erminea*, sp. nov.

#### CORRIGENDA.

Page 31, line 5 from bottom, *dele* "inferior ♂ appendages when present unarmed."

„ 33, „ 17 „ top, *for* "averted," *read* "everted."

„ 33, „ 6 „ bottom, *after* "obovate," *insert* "unarmed."

„ 120, „ 23 „ „ „ "3," *insert* "2."

„ 123, „ 3 „ „ *for* "4, 2b," *read* "3b, 2."

(To be continued).

#### NOTES ON SOME BRITISH AND EXOTIC COCCIDÆ (No. 26) -

BY J. W. DOUGLAS, F.E.S.

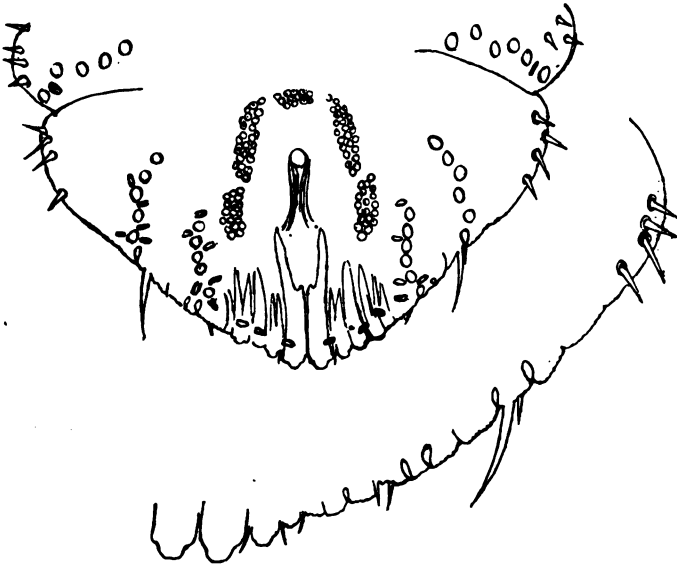


Fig. 1.

Fig. 2.

#### CHIONASPIS SORBI, n. sp.

♀ adult. Scale whitish, irregular-oval, ham-shaped, being very narrow at the anterior end, where the larval exuviae are; the insect beneath is red. Last segment of the body (Fig. 1) with five approximate dorsal groups of spinnerets, the anterior

having 13—15, the anterior laterals each 24—33, usually the latter, the posterior laterals 19—26. Of the posterior marginal lobes, the median two, lying close together, have parallel sides, are very much prolonged inwardly, but at little more than half their length are narrowed suddenly from the inner side, thence they are extended, somewhat divergently, each to a sharp point, the base of the prolongation having a short, sharply toothed, projection; the extensions of the two lobes resembling a two-pronged fork: exterior to the two median lobes are on each side of them four narrower ones, also similarly extending inwards; the first of these reaches nearly to the level of the base of the median furcation, and has a deep apical cleft, so that it presents two long acute points; the second is much longer, and has one acute point; the third is nearly as long, and has two very long sharp points; the fourth small, about the length of the first, and, like it, has a bifid termination; on each of the lobes posteriorly is an elongated pore; except the fourth lobe, which has its base on the margin, the external end of each lobe projects a little beyond the marginal line, is suddenly gradate on each side, and is then extended in a short rounded projection: beyond the lobes the margin is an almost regular curve, the limits of the marginal plates being scarcely indicated, but about half way along the curve is a long projecting marginal spine, and near the junction with the next segment are four short, stout, contiguous spines well within the margin, but extending beyond it. The ventral surface only has oval or rounded pores. (Fig. 2 represents the marginal structures more enlarged).  
Length,  $1\frac{1}{2}$ —2 mm.

♂ scale clear white, of the usual form, *i. e.*, elongate, parallel sided, end rounded; tricarinate, the median keel distinct, the side keels slight; the larva exuviae at the anterior end also white. Length, 1 mm.

This species, in respect of the ♀, seems to approach *Ch. furfurus* Fitch (Comstock, Report for 1880, p. 315, pl. vi, xvi and xvii), but it differs greatly in the number and form of the lobes and in the number of the marginal spines of the last segment, and also in the dorsal spinnerets. It is a very distinct species, and does not appear to have been described.

In September, 1892, Dr. O. M. Reuter sent from Abo, Finland, a number of the scales with the following information:—

"I herewith send you a piece of bark from Mountain Ash (*Sorbus aucuparia*). The whole stem of the tree and all its branches, even up to the leaf-stalks, were covered with the little red scales, which, when crushed, made a blood-red stain; and there were also numerous small white ones. I should be very much obliged if you would kindly tell me the name of this species. It was found on June 26th in the parish of Ilmola, 63° north latitude; some of the red scales (? larvæ) were then creeping about."

Mr. R. Newstead had the kindness to mount fourteen specimens of the ♀, all of which exhibited the foregoing characters, and also to make a drawing, which is here reproduced.

THE DECADENCE OF BRITISH BUTTERFLIES, WITH SUGGESTIONS  
FOR A CLOSE-TIME.

(Abstracted from a Presidential Address delivered before the West Kent  
Natural History, &c., Society on February 22nd, 1893).

BY ROBERT McLACHLAN, F.R.S., &c.

Early in January, 1887, I received in an editorial capacity a query as to whether *Aporia crataegi* still existed on this side of England.\* Now for many years previously my special attention had been occupied and absorbed by another Order of insects, and, as the sequel proved, my knowledge as to the then-existing conditions of certain British Butterflies had become distinctly rusty. My reply to the query was that I had no reason to doubt that the insect still occurred in the district between Herne Bay and Canterbury. This locality was chosen in particular, because it had been one of the known haunts of the species, and it was there that early in July, 1858,† I met with it in the greatest abundance. From their condition the Butterflies had evidently been out for some time, and a search along the hawthorn hedges showed a large quantity of the empty pupa-skins. I may here remark that, although this Butterfly has never been considered an injurious insect in this country, it is often so considered on the Continent in consequence of its damage to various fruit trees.

This simple query, and the ignorance and innocence shown in the reply to it, were the means of bringing forward a mass of interesting communications, showing that the insect had disappeared from all its usual haunts, not only in Kent, but practically all over England, and that, in fact, it had been waning since about the year 1865.

That *Aporia crataegi*, like many other British Butterflies, had a much wider distribution formerly than recently, there can be no question; but possibly it never occurred either in Scotland or Ireland. In the old works of the last century it is mentioned constantly, and it must be remembered that workers in those days were few, whereas at present every corner of these islands has its eager explorers, either residents or visitors. So long ago as 1828, we find J. F. Stephens‡ stating that in 1810 he saw it in plenty in Coombe Wood, Wimbledon, and in the following year at Muswell Hill; and that Mr. Haworth informed him it used to abound constantly at Chelsea, but had disappeared. So at one time it was a London insect, but it probably ceased to be such before the vast majority of Entomologists now living

\* Ent. Mo. Mag., xxiii, p. 214. † Entomologist's Weekly Intelligencer, iv, p. 125.

‡ Illust. Brit. Ent., Haust., i, p. 2.

saw the light. The number of what may be called London Butterflies is fast diminishing. I could point to more than one within the last 20 years, and be it observed that this disappearance of once familiar insects from our immediate neighbourhood seems to be often connected with a tendency to localization elsewhere, which may probably end in extinction, for to my mind, and I think to that of every observant Entomologist, many British Butterflies are on the wane.

Assuming that the "Black-Veined White" ceased to be a London insect early in this century, it nevertheless remained abundant (though somewhat intermittent in this respect) in many other parts of the country. In our own County of Kent, my colleague, Mr. Goss, was informed that in 1844 it was the commonest Butterfly at Wye, it had disappeared in 1859; it was certainly the commonest Butterfly in the Herne Bay district before alluded to, but in 1864 Mr. Goss explored the district without seeing it; it abounded near Rochester and Strood up to 1866, and then presumably disappeared, but one was captured in 1872. Many other localities in the county also furnished it, and it has been recorded from between Dover and Ramsgate so lately as 1890, and while writing this Address, I heard of a capture in East Kent last year; but, with regard to some straggling captures in Kent and elsewhere, recorded latterly, there is to my mind just a shadow of a doubt, inasmuch as foreign pupæ are now imported and sold in large numbers, and some of the resulting Butterflies may accidentally escape or be intentionally set free, and be regarded by the captors as real natives.

I do not propose to notice its special localities to any extent outside our own county. In the New Forest, in Hampshire, it abounded probably every year down to 1870, but by 1878 or 1880 it had entirely disappeared. In 1867, it was abundant near Tintern, in Monmouthshire, in 1877 it was practically extinct. In 1868 and 1869, it was common in Glamorganshire, but has not been seen since. In other counties, such as Sussex, Huntingdon, Northampton, and Hereford, where it formerly abounded, it has not been seen for many years.

Upon analyzing these dates it would seem that in localities where the Butterfly was plentiful in comparatively recent years, we find a gradual disappearance of it, commencing about the year 1865, in some places much more marked than in others, and that by about 1878 it had become practically extinct, the few specimens observed since then having been some of them sporadic, and others under conditions that might leave reasonable doubt as to their being of absolute British origin.

It would appear, then, that a large and conspicuous Butterfly, the larva of which feeds on such common plants as hawthorn, sloe, apple, etc., which was counted as a London insect early in this century, and which, less than twenty years ago, was still abundant in certain districts in England, disappeared, or practically became extinct, in all its widely-separated localities in so limited a period as from ten to fifteen years.

There are those, I believe, who think the species may be rehabilitated through natural immigration from the Continent. Having the fullest and firmest belief that some of our conspicuous British Butterflies remain British only through occasional immigration in large quantities, I do not share the opinion that *Aporia cratægi* is likely to re-establish itself by this means, because, in my opinion, it is a non-migratory species. It is probable that almost any winged insect may be migratory in a sporadic sense, that is, in so far as concerns certain individuals, but supposing such exist in this species, these casual migrants could have little or no effect in re-peopleing the country.

As to the cause or causes of extinction. I have already alluded to the decadence that appears to be going on in many British Butterflies. I am of opinion that this is mainly due to occult natural causes, and not brought about directly by man's agency. With regard to the disappearance of this and other Butterflies from the vicinity of this vast and overgrown metropolis, there is perhaps nothing to be wondered at. But in the case of *Aporia cratægi*, its disappearance from its country haunts is inexplicable on causes other than natural decadence; its food-plants are common and universal, and there have been no great changes in the physical condition of its former localities. I do not think the too-rapacious collector is primarily to blame; but on this point I would express an opinion that when, from other causes, the vitality or stability of a species is in process of being undermined, the few hundreds of individuals taken by collectors in a certain year, in a certain locality, may materially hasten its extinction.

I will now briefly allude to two other British Butterflies that have become extinct during my lifetime.

The first of these is *Chrysophanus dispar*. In former years this was abundant in many of the large fens of our Eastern Counties, where its larvæ fed upon the great water-dock (*Rumex hydrolapathum*). It disappeared entirely about the year 1850, and it is probable that in this case physical causes through man's agency were at work that precipitated its destruction. The great fens were drained, and, more-



over, in order to render the reclaimed land more available for cultivation, the herbage on them was fired. A few stragglers have been recorded from other parts, but the records mostly need confirmation. This is a far more serious loss than that of *Aporia crataegi*, because it means the extinction of a Butterfly that existed nowhere else in the world. It is true that the species exists on the Continent in a slightly modified form (*Ch. rutilus*), but our own type-form presented certain peculiarities not seen elsewhere.

The other extinct Butterfly is *Lycæna Acis*. This was a widely-spread insect over England, but was always extremely local, and seldom, if ever, found in numbers. Its extinction was going on for many years, and probably commenced about 1840; a few captures have been made within the last ten years, but there is every reason to believe that it is now totally extinct, and in this case I cannot but think that over-collecting has greatly aided extinction.

And here I would remark that a near relative of the last, *Lycæna Arion*, shows signs of being dangerously near extinction, having become so localized as to apparently exist only in a certain limited area of a few miles, of which area the junction line of Devon and Cornwall may be taken as the centre. In its case, I would implore collectors to refrain from taking the insect for a series of consecutive years, if only to see whether its decline might not be checked, and whether it might not re-appear in some of its former haunts.

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Our Butterflies at the present time number only about 63 species (I purposely exclude a few that may be regarded as merely casual stragglers). When we regard the very much larger number that exist in all the most adjacent parts of the Continent of Europe (even in Scandinavia) we are compelled, I think, to the belief that in times pre-historic, so far as Entomology is concerned, the list must have been much longer, and I doubt not that certain kinds, of which no record whatever remains, once existed in the vicinity, perhaps in the streets, of that ancient City of Silchester, to the Zoological and other relics of which our respected Member, Mr. Herbert Jones, is devoting so much and so laudable attention; and there may then have been some Roman naturalist who studied them, and small boys who chased them.

But islands generally, save in the tropics, do not seem favourable to Butterfly life, and the small distances that often separate them from

the mainland seem to prove, in many cases, barriers to that introduction of fresh blood necessary for the recuperation and continuance of the race.

With us, the continued extension of our large towns, and the inevitable smoke and other insanitary conditions, have no doubt caused many species to become more and more localized, and so also has the high state of cultivation contingent upon the necessities of a rapidly increasing population over a restricted area; and localization may generally be looked upon as the first step to extinction.

British Butterflies may be divided into several more or less delimited groups as regards their ability, or otherwise, to resist decadence.

In the first there are those, and happily they are the largest division (although they include some distinctly injurious species), which are of comparatively general distribution, and if some are distinctly localized, it is usually through natural physical conditions, such as latitude, altitude, &c., and they show few, if any, signs of decadence. Moreover, in this group, and even in our familiar "Cabbage Whites," there is undoubted occasional immigration in large numbers in some of the species; in others not at all.

There is another group, the members of which are sometimes extraordinarily abundant, that would probably soon become extinct but for the invasion at uncertain intervals by migratory swarms; and indeed there seems reason to believe that they *do* become temporarily extinct, but experience proves that the chances of their utter extinction are remote. Here may be placed *Colias Edusa* and *Hyale*, and perhaps *Vanessa cardui*.

Then comes a small contingent, consisting of species which there is no evidence to prove ever breed here, or at any rate, have done so in recent times, but yet occur in an irregular manner to an extent that leaves little fear for their extinction. Such are *Pieris Daplidice*, *Argynnis Lathonia*, &c.; and here also may be placed *Vanessa Antiopa*: all of these may be said to be more or less sporadic, but the last named, when it does occur, is usually in considerable numbers and widely spread.

Again, there are those which, while inhabiting the most restricted localities, continue on from year to year in undiminished numbers, notwithstanding the onslaughts made upon them by collectors. *Hes-*

*peria Actæon* is a notable instance, inhabiting as it does only a small space on the coast of Dorsetshire. And here may be placed *Papilio Machaon*, which still continues very abundant in a few of the fens of East Anglia, where it has adopted both localities and habits that differ considerably from those of the same species on the Continent, and where it is the prey of man, woman, and child, who have learned to regard it as an article of commerce. Let us hope that disaster, physical or otherwise, may long be absent, and so avert its extinction! There is no other British Butterfly that is so sorely tried.

But there is still another group, that to which the "Black-Veined White" belonged, and it is the one that may be regarded with the most anxiety. It consists of species once more or less widely distributed that have gradually become more narrowly localized, and, as I said before, this has proved to be the first step towards extinction. This tendency to localization shows that they are being, as it were, driven into a corner, their vitality is lowered, and they are ready to succumb to evil influences that may arise or be intensified at any moment. *Vanessa c-album* is a good instance.

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I have spoken about the extent to which the direct action of collectors may influence the extinction of a species, and have said that I do not regard it as serious save in cases where other causes have already put the species far on the road to extinction. But I may have under-estimated this matter, and it has occurred to me latterly, on several occasions, whether a Close-Time could not be enforced for certain British Butterflies, the species to be decided upon by a Committee of Experts, just as has been done for British Birds, &c. The idea may seem to some childish and ridiculous, full of paltry sentiment, and so on. But why not protect the beautiful innoxious insects that display their admirable forms and colours, and gladden the hearts of all true lovers of nature, just as much as do the Birds that enliven our woods and hedgerows? I confess I see nothing absurd in the idea. But how it is to be done is quite another matter. A Close-Time as in Birds, extending over only certain months in each year, would be useless. For Butterflies it would mean that it be absolutely forbidden to capture any and all of the species decided upon in any stage whatever during a series of say five or ten years. If it could be done we would have a direct test of the still much-disputed agency of the collector in causing or hastening extinction, and in certain cases the opportunity might be taken of artificially re-stocking our woods and

fields, and of watching the result. I am not aware that the idea of a Close-Time for Butterflies has previously been promulgated.

[P.S.—In Birds the Protection Act has been found insufficient in certain cases, and the Zoological Society of London is endeavouring, in a most praiseworthy manner, to avert the extinction of some species by bestowing medals upon residents in the vicinity of the breeding places who have shown themselves ready to protect the Birds and their nests.—R. McL.].

*A new Coccid in an ant's nest.*—On April 24th Mr. C. W. Dale kindly forwarded two specimens of a large *Coccid* which he had taken in a nest of *Formica nigra* at Chesil Beach. The species is new, and undoubtedly belongs to the genus *Lecanopsis*, Targ.-Tozz., although it has eight joints to the antennæ instead of six. The specimens measured—long, 5—5½, wide, 2—2½ mm., and may be roughly described as of a dusky yellow or reddish-yellow, with two broad, interrupted, subdorsal stripes of dark purplish-brown. In form it is not much unlike a young woodlouse, and might be overlooked as such. Full description of this interesting species will appear in this Journal in due course; meanwhile, I should be glad if collectors searching in ants' nests would kindly be on the look out for such insects, as it is necessary to examine more specimens if possible. I have given it provisionally the specific name *formicarum*, MS.—R. NEWSTEAD, Chester: May 10th, 1893.

*Mytilaspis pomorum*, Bouché, on *Cytisus* in *Teneriffe* and *Guernsey*.—Specimens from Guernsey were found on the common broom (*Sarothamnus scoparius*) by Mr. W. A. Luff on the 7th inst. These were specially interesting from the fact that, in addition to the adult ♀ scales, there were many ♂ scales. Hitherto the latter have not been observed in this country, and the food-plant is a new one. Possibly the ♂ may yet be found in England, for Prof. Comstock remarks (Report, 1880, p. 326), "Although the male of *M. pomorum* is rare on apple, it is not at all so on other plants." The scales of the ♀ were exceptionally straight, due in a measure to the narrow grooves in the stems of the food-plant, in which they were generally located. The specimens "from the peak of *Teneriffe* on *Cytisus nubiigenus* at 7—8000 ft.," collected there by Mr. D. Morris, of Kew Gardens, were sent to me by Mr. J. W. Douglas on the 4th inst., on a small piece of the food-plant, which was completely covered with the light brown contorted scales of the ♀.

I have given the specimens from each locality a careful microscopic examination, compared them with *M. pomorum* from apple, and find them to agree in every way with this common species, except as to the number of spinnerets, which exceed those given by any author. I attach little importance to this, providing the marginal appendages are always the same, which I found to be the case in all the specimens examined. Below are the number of spinnerets seen:—

Guernsey specimens...	anterior, 10;	anterior laterals, 20—21;	posterior do., 12—17.
<i>Teneriffe</i>	"	" 14—15;	" 20—31;
	"	"	" 19—24.

—*Id.*

*Lecanium distinguendum*, Doug., on broom in Guernsey.—During April I found numbers of large Coccid scales on the broom (*Sarothamnus scoparius*), which grows in small patches on the cliffs near the Gouffre, on the south coast of the Island. Many of the plants bore hundreds of scales, whilst others close by had not a single specimen. I noticed that all the Coccid-infested plants were pressed close to the surface of the rocks, in which were ants' nests, and these ants were swarming over the Coccids, appearing to derive great satisfaction from licking them. I sent specimens of the Coccids to Mr. R. Newstead, who says they are undoubtedly *Lecanium distinguendum*, Doug., and that all the scales sent were badly infested with parasitic larvæ, which accounted for their very abnormal form. Hitherto the only known food-plant of this species was *Vaccinium myrtillus* (which does not occur in Guernsey). It was first described as a new species by Mr. Douglas in the Ent. Mo. Mag. for April, 1891, from specimens found in Delamere Forest by Mr. Newstead.—W. A. LUFF, Guernsey: May 15th, 1893.

*Anthocharis cardamines* in Guernsey.—I have pleasure in recording the capture of a male specimen of this butterfly in Guernsey on April 23rd. It was flying over a marshy spot called La Grande Mare, near Vazon Bay, on the west coast of the Island. I had no net with me at the time, but succeeded in securing it with my hat. This is the first record of its capture in Guernsey. In a "List of the Butterflies of Jersey," by Mr. F. G. Piquet, published in Newman's "Entomologist" for June, 1873, he says, "Has been once taken near Victoria Village, St. Saviour's."—Id.

*Economy of Incurvaria capitella*.—It may be of sufficient interest, in confirmation of my observations (Ent. Mo. Mag., 2nd Series, vol. iii, p. 297), that this species spins its hibernaculum on the branches of the currant bush, and not in the ground or elsewhere, to note that on March 15th, 1893, I examined this bush, on a branch of which (about one-fourth or one-fifth of the tree) I last year sleeved a moth. On this one branch I found over a dozen larvæ of *I. capitella* in buds and shoots, whilst not one was to be seen in all the rest of the tree. As several were already in their last skins, it is obvious that in this precocious season I was rather late in the date of my examination, to find them at all freshly emerged from their cocoons. The smallest was 4 mm. in length, and moulted twice more, and had probably moulted once already this spring.—T. A. CHAPMAN, Fribank, Hereford: May, 1893.

*Pupa of Parnassius Apollo*.—This pupa is clothed with a very thick "bloom," apparently of the same nature as that in *Cosmia trapezina* and *Halias prasinana*, &c., but very much thicker, so that quite an appreciable quantity may be scraped off. I find that this melts when heated, running together into transparent globules. Water and alcohol have no effect upon it. Ether does not dissolve it rapidly, if at all. What is its nature? Its use seems very probably as a waterproof coating, as water is strikingly repelled by it, and the cocoon is found on the surface of the soil, often probably in places liable to be flooded.—Id.

*Eupithecia iriguata* in the Isle of Purbeck.—As this pretty "pug" is not only extremely local, but also decidedly rare, even in its special haunts, I was delighted last month to be able to add it to our list of Purbeck *Lepidoptera*. As I was passing through a copse near here on the evening of April 24th, a small

*Geometer*, which was flying about wildly near an oak tree, attracted my attention ; but being armed merely with a walking stick and two or three small boxes in my pocket, I could only look on and wonder what it was ! Presently it came down and settled on a sallow leaf at the edge of the ride, and, on creeping up, I caught sight of a magnificent specimen of *E. irriguata* ! So near and yet so far ! For although I could, and did, gaze at and admire it to my heart's content, there were unluckily three or four sallow leaves on the same twig, which would almost certainly prevent my getting a box near it without disturbing it. At last the attempt had to be made, and—with the expected result, for, owing to those few provoking leaves, I had the mortification of seeing the moth fly off and disappear in the high copse-wood. The disappointment, however, of not securing it was a mere trifle in comparison with the pleasure of having met with it in this neighbourhood. I have always had a lurking hope of doing so some day—firstly, because we find here a fair number of the species which, like *E. irriguata*, are almost entirely confined to the New Forest district, of which this practically forms an outlying portion ; and secondly, because it occurs at Glanvilles Wootton in the north of this county.—EUSTACE R. BANKS, The Rectory, Corfe Castle, Dorset : May 6th, 1893.

*Eupithecia dodoneata* on hawthorn.—I have read with interest a note of the Rev. W. F. Johnson's, of Armagh, in a recent number of the *Entomologist's Monthly Magazine*, respecting the occurrence of this species on hawthorn. I took some pupæ under hawthorn bark in the Phoenix Park last March, which have proved to be this species ; there were no oak trees near.—J. N. HALBERT, 13, Nelson Street, Dublin : May 11th, 1893.

*Peronea perplexana*, Bt., near Glasgow.—Some little time ago, Mr. Barrett, while examining my collection, picked out a number of specimens of the above species taken at Cadder Wilderness and Mugdock Woods, near Glasgow, also one specimen on the Moose Water, Cleghorn, near Lanark. They were all mixed with *P. Schalleriana*, a species which is very common at all the localities mentioned.—JAMES J. F. X. KING, 207, Sauchiehall Street, Glasgow : May, 1893.

*Oxyptilus parvidactylus*, Haw., in Ireland.—This species occurred in quantities along the railway banks near Athlone, when I was there in 1888. I might have taken any number if I had been so disposed. I do not think that the species has been reported for Ireland before.—ID.

*Early Spring Insects*.—On April 22nd I went down to Ringstead on the Dorset coast and saw *Colias Edusa* (both sexes) out, fine and fresh ; *Polyommatus Agestis* and *Icarus*, *Chrysophanus Phlaas*, *Lasiommata Megera* (very common), *Cænonympha Pamphilus*, *Thanaos Tages*, *Pædisca Brunnichiana*, *Bibio marci*, *Tipula vernalis*, *Phalerocera replicata*, *Libellula depressa*, and *Agrion pulchellum*. On April 21st, at Glanvilles Wootton, *Argynnis Euphrosyne* was out commonly (Lewin recorded this in April, 1775, but I know of no later instances) ; also *Syrichthus alveolus*, *Eupithecia indigata*, and *Eupæcilia maculosana*. On April 24th were out *Cidaria silaceata*, *Acidalia remutata*, *Heliodes arbuti*, *Cabera pusaria*, *Lozogramma petriaria*, *Lomaspilis marginata*, *Pyrausta purpuralis*, *Herbula cespitalis*, *Pardia tripunctana*. On April 4th, *Eubolia lineolata* at Deal ; on March 28th, *Dasytoma*

*salicella* at Hastings; on March 27th, *Pieris rapæ* common in Wiltshire; and on April 6th, *Anthocharis cardamines* common.—C. W. DALE, Glanvilles Wootton: May 1st, 1893.

*Early appearance of Odonata and other Neuroptera.*—Being desirous of noting the first appearances of Dragon-flies this year, I have already paid several visits to my last year's locality, the Hut Pond, near Wisley, Surrey, and the results are certainly surprising. My first visit was on April 18th, and produced only a few *Hemerobius limbatus*, one *H. nitidulus*, and a few *Limnophilus griseus*. No Dragon-flies to be seen. On the 28th *Libellula quadrimaculata* was fairly common. I saw one *Platetrum depressum*, and a few *Enallagma cyathigerum*, *Hemerobius limbatus* and *nitidulus*, and one *Ephemera vulgata* (imago), a few *Limnophilus vittatus* and *centralis*. On the 29th, at Egham, I saw *Brachytron pratense*, but failed to catch it, having only my hat. On May 6th, at the Hut Pond, *L. quadrimaculata* was common, as also was *P. depressum*; several *B. pratense* seen, and five taken; *Agrion puella* common, one *Erythromma Nais*, *Ephemera vulgata* in swarms, and one *Chrysopa perla*. On the 10th my brother and I took four *Cordulia aenea*, and saw several others, and one *Pyrrhosoma minium*. These two species we had not previously seen at this pond, and are additions to the list I published, Ent. Mo. Mag., n. s., vol. iii, p. 8, and bring the total number of the species taken at this pond up to twenty. Both are included in my list of "expected species." I also took one *E. Nais* and one *Æcetes ochracea*. I think I saw *Anax formosus*. On May 15th *A. formosus* and *Orthetrum cancellatum* appeared, both immature, but the latter fairly common. A few *Æ. ochracea* seen, but only one taken. During the second week in May species of *Chrysopa* appeared commonly in our garden, but as I had not time to set them, I took none.—C. A. BRIGGS, 55, Lincoln's Inn Fields: May 17th, 1893.

*Abundance of Bombylius major.*—In reply to Mr. R. C. Bradley, I write to say I also found *Bombylius major* very common in the New Forest, flying about sunny banks during the latter part of April, when I was staying there. In a very short time I took as many as I wanted, and could have secured any number. I also took two *B. minor*, but did not see *B. discolor*. Can any of your readers inform me whether the latter insect is local, or whether it comes out earlier or later than the other species?—F. C. ADAMS, 68, St. Ermin's Mansions, S.W.: May 6th, 1893.

*Coleoptera at Tenterden, Kent.*—On July 19th last I was at Tenterden, and having about an hour to spare, I looked about for *Coleoptera*. Unfortunately, I had no collecting apparatus with me except a newspaper, or I might have got more. On the flowers of *Umbelliferae*, *Anaspis subtestacea*, *thoracica* and *ruficollis* were common, and *Mordella fasciata* (2), *Malachius ruficollis* (1), *Mordellistena pumila* and *humeralis* (1), and plenty of *Anthrenus museorum*, were found under the same conditions. Beating aquatic plants in the water produced nothing but a single specimen of *Donacia dentipes* and plenty of *Galeruca lineola*. *Gymnetron noctis* was not uncommon in flowers of *Linaria vulgaris*, and a few specimens of *Anobium fulvicorne* occurred with *Priobium* on old hop poles. Out of an old willow tree I got a nice specimen of *Phlaotrypa Stephensii*. I suppose I was too late for this species, as I found a good many elytra in old burrows in the willows.—W. H. BENNETT, 11, George Street, Hastings: May, 1893.

*Coleoptera near Eastbourne.*—Last August I had a day's collecting near the mouth of the Cuckmere and on the hills round Eastbourne. The following were the best of the *Coleoptera* taken:—*Bledius tricornis* (common), and its attendant, *Dyschirius salinus*, *Bembidium saxatile* (1), *Dichirotrichus obsoletus* and *pubescens*, *Ocypus ater*, *Aphodius nitidulus* (in plenty), *Mordellistena pumila*, and *Synalypsa hirsuta*. Thistles produced *Ceuthorrhynchus litura* and *trimaculatus*, *Ceuthorrhynchus spinosus*, and *Apion carduorum*. A single specimen of *Homaloplia ruricola* was also taken, floating in a pool of brackish water; and the following weevils by grubbing or sweeping at the roots of grass:—*Trachyphloeus squamulatus* (2), *Orthochates setiger*, *Gymnetron noctis*, *Apion aneum*, *radiolus*, *rufirostre* and *ebeninum*, and *Bruchus cisti*.—ID.

*Cissophagus hederae* at Fairlight.—In a previous number I have recorded the capture of three specimens of this rare species by beating in the summer of 1892. I am now able to supplement that record, as I have lately taken the species in some numbers at the same locality, from its burrows in the ivy. In all I have seen a good number of plants attacked by the insect, but they appear only to occur in very small numbers; and a great deal of work is required to get even a fair number of specimens.—ID.

*Rhopalomesites Tardii* in the Hastings district.—I have much pleasure in recording this species from old holly at Fairlight in numbers. So far I have only found it in one tree, but I have never looked for it here before, as I did not dream of its occurrence in the south-east of England.—ID.

*Coleoptera at Thurso, 1892.*—A few notes from this Ultima Thule of the British mainland may not be uninteresting, particularly from a neighbourhood rendered so historical by the natural history investigations of Robert Dick. The month of August and beginning of September proved much better in the way of weather than the preceding months in England, yet insects were scarce. The coast of this part of Caithness is for the most part very precipitous, the old red sandstone strata, here nearly horizontal, forming a series of magnificent headlands. Beautiful little bays occur at intervals, with sand dunes and rabbit warrens. I worked chiefly the east and west shores from Thurso, the sandhills of Castletown, and the little tarns on the bold headlands of Holborn and Dunnet. I am sorry to say I neglected the inland country, which consists chiefly of a vast elevated bog.

I will take the shores first. Between Thurso and its picturesque port of Scrabster I took under stones *Otiorrhynchus blandus* not uncommonly, and *O. ova* commonly, *Barynotus Schönherrii* (2), *Bembidium atrocaruleum*, *Tachinus pallipes* and *laticollis*, these were by far the commonest *Tachini* met with; *Stenus guttula*, *Ocypus morio*, *cupreus* and *brunnipes*; *Quedius umbrinus*, *Casius xantholoma*, *Othius melanocephalus* (common); many common species of *Omalium* and *Tachyporus*. On the eastern shore a few common species of *Anchomenus*, *Pterostichus*, *Lathrobium* and *Philonthus*, and some *Otiorrhynchus blandus*. Along the top of the cliffs, between Thurso and Scrabster, is a fine walk, from which grand views of Orkney may be obtained. This walk is separated from the adjoining cultivated fields by rows of Caithness flags, placed end to end. On fine warm days these proved to be one of my best collecting grounds. One day *Micropeplus porcatus* and *Ceuthorrhynchus*



*contractus* swarmed on them; I also took *Sitones flavescens*, *Quedius semianeus*, *Hylargus piniperda*, and one specimen of *Silpha opaca*, and numerous small species from the same flags. The stones near the high road, at the base of Scabster Cliffs (great deposits of boulder clay), yielded one specimen (imperfect) of *Corymbites cupreus*, and a specimen of *Tropiphorus mercurialis*.

The Tarns.—A little shallow tarn on Holborn Head, near a farm house, yielded a great many common things, but which it may be interesting to note from this extreme northern locality. On floating leaves of *Potamogeton*, *Donacia bidens* was abundant. At the edges, and in the little becks near, *Elaphrus cupreus*, *Parnus prolifericornis*, *Limnebius truncatellus*, and *Anacæna limbata* occurred, some of them very commonly. In the tarn itself, *Agabus bipustulatus*, *chalconotus*, *nebulosus*; *Hydroporus planus*, *erythrocephalus*, *palustris*; *Colymbetes fuscus* and *exoletus*; *Agabus guttatus* occurred in great abundance under stones in almost every stream, even when nearly dry. A specimen of *Necrophorus ruspator* was taken under a dead bird. In some larger tarns just under the lighthouse at Dunnet Head, I took, in addition to many of the others, *Agabus arcticus*, *Acilius sulcatus*, *Hydroporus vittula*, *nigrita*, *melanocephalus*, and one specimen of *Cælambus novemlineatus*, also *Hydroporus memnonius*, and *Gyllenhali*, with two or three specimens of *Helophorus ensipennis*.

The sandhills at Castletown yielded very little, the season being evidently too late. Imperfect specimens of *Serica brunnea* were abundant. *Calathus mollis* swarmed under prostrate ragwort leaves. On small thistles *Otiorynchus atroapterus* was not uncommon. A few specimens of *Bledius arenarius*, and a fragment of *Broscus*, were all that rewarded a couple of hours' search. In the town of Thurso I obtained a second specimen (damaged) of *Silpha opaca*, and single specimens of *Otiorynchus sulcatus* and *picipes*, *Barynotus Schönherr*, and in my lodging, *Pristonychus terricola*.—ALFRED THORNLEY, South Leverton Vicarage: April 11th, 1893.

*A new variety of Telephorus figuratus*.—The specimens of *Telephorus* previously recorded by me as *elongatus* appear really to be a black form of *T. figuratus*. I find they will not do for the subgenus *Rhagonycha*, but belong to *Telephorus* proper. The specimens are entirely black, with the exception of the labrum, mandibles, knees, claws, extreme side margins of thorax, outside of anterior and intermediate tibiae, and pubescence, which are coloured much as in *scoticus*. The under-side of the first two or three joints of the antennæ is also somewhat lighter, and occasionally the tibiae are lighter where they join the tarsi. As *T. elongatus* has been recorded by Mr. W. Lennon from the Solway district apart from fir trees (see the Annals of Scottish Natural History, April, 1892, and reprint therefrom), I was less on my guard in determining my specimens than I ought to have been; they were taken by sweeping in a damp place along with *paludorus*. I propose to call the variety *cruachanus*, from Ben Cruachan, near which it was found.—A. J. CHITTY, 33, Queen's Gate Gardens, S.W.: March 4th, 1893.

*Rare Coleoptera*.—On April 17th I took my fourth specimen of *Scybalicus oblongiusculus* in Portland. On the 13th I took *Masoreus Wetterhali*, and one of *Hypera elongata* on the Chesil Beach. The latter agrees with that species in my father's cabinet, but Fowler records it as very rare, and perhaps doubtfully indigenous. However, another species which occurs at Glanvilles Wootton, viz., *Adimonica*

*alandica*, Fowler records only from Whittlesea Mere and Wicken Fen (*Coleoptera* of Brit. Islands). *Adimonia tanaceti* also occurs here, where there is no tansy or thyme.—C. W. DALE, Glanvilles Wootton: *May 1st*, 1893.

*Claviger testaceus* in *Wychwood Forest*.—In looking through the specimens of *Pselaphidæ* and *Clavigeridæ* contained in the Hopeian Collection, I was rather surprised to find a specimen of the above insect with the following label attached to it, in the handwriting of Professor Westwood:—" *Claviger foveolatus*, Müll., taken 30th of August, 1838, in ants' nest under stone on New Hill Plain, Wychwood Forest, attached to this winged ant on under-side of body.—J. O. W." The ant in question is *Lasius flacus*, of which a winged ♂ and a ♀ are represented on the card in company with the beetle. As this is, I believe, the only Midland locality for this insect, it is therefore well worth recording. I hope during this year to record the same insect, as I expect to work the locality myself.—JOHN W. SHIFF, Oxford University Museum, Oxford: *April 2nd*, 1893.

*Silpha atrata* and its varieties.—There appears to me to be considerable difference in the divergence from type of the two varieties of this *Silpha*, viz., *brunnea* and *subrotundata*. I have taken both forms as well as the type in some numbers, and my experience does not in every point confirm the descriptions given in Canon Fowler's "*British Coleoptera*." Var. *brunnea* appears to me to be a true variety, probably not racial, as I have found it and the type form together, and differing from the type *only* in colour. My captures are not as a rule smaller than *S. atrata*, but perhaps more irregular in size than the type; I have taken it nowhere but in Wales, but not specially at high elevations. It is reported from Orkney, and the Rev. W. F. Johnson believes that he has taken it in Ireland. Var. *subrotundata* diverges very much more from the type, and is undoubtedly a racial form. The divergence appears to me to be specific, and not varietal merely. It is usually larger than the type, but varies in size more even than *brunnea*; the shape is invariably broader in proportion to length than in *S. atrata*, the thorax less punctured on the disc, and the convex margins of both thorax and elytra are always broader, and the convexity deeper. The colour, of course, is different, but varies from a form as dark as the type to one as light as a light *brunnea*. I can find no difference in the elytral keels; they vary in each of the three forms, and appear to me to vary equally in each. These differences seem to be quite as great as those which separate many species; such instances will readily occur to the Coleopterist. The interesting question, however, is, whether there exists authentic evidence of this form having been ever taken except in Ireland and the Isle of Man? I am myself disposed to attribute our English records to var. *brunnea*, as that form might very easily be taken for var. *subrotundata* by any one not conversant with the genuine Irish insect. It is evident that the interest attaching to this *Silpha* would be much enhanced if it could be proved to be so restricted in its distribution, and I am anxious to obtain what evidence there may be accessible of its occurrence elsewhere.—W. E. SHARP, Ledsham, Cheshire: *May*, 1893.

[I am much inclined to consider var. *brunnea* as an immature or not quite developed form of *atrata*; var. *subrotundata*, from its shape and size, and to a certain extent, from its sculpture, might be regarded as a distinct species, if there were no intermediate forms.—W. W. F.]

*Ceuthorhynchus pilosellus*, Gyll., &c., at Woking.—I found an example of this extremely rare British weevil in a small sand pit in this neighbourhood at the end of April, but my subsequent endeavours to discover the food-plant have been quite unsuccessful. The only *Cruciferae* in the immediate vicinity of the pit are *Brassica rapa* and *Capsella bursa-pastoris*; the first-mentioned plant produces *C. sulciollis* and *C. assimilis* in abundance, and *C. quadridens* sparingly. The most likely looking plant, so far as I can discover, is *Lycopsis arvensis*, which grows sparingly in the district. M. Bedel informs me that he thinks it probable that *C. pilosellus* lives upon a small *Allium*, or upon some plant belonging to the same Order (*Liliaceae*). The Woking specimen agrees well with one given me many years ago by Mr. S. Stevens, except that it has more distinct patches of whitish scales on the elytra. The last British record of *C. pilosellus* appears to be that of Dr. Power—1864, at Seaton, Devon. *Sitones griseus* occurs sparingly in the Woking district, always upon *Ornithopus perpusillus*, a plant not hitherto recorded for this insect I believe. *Cleonus nebulosus* appeared as early as April 3rd, and *Cicindela sylvatica* a few days later. *Anisotoma nigrita* was observed on May 6th.—G. C. CHAMPION, Horsell, Woking: May 13th, 1893.

*On arsenic as a preservative.*—A friend has kindly called my attention to an ambiguity in my notes on this subject in our last No. I used the words "a solution of arsenic in alcohol." But arsenic is insoluble in alcohol, and should first of all be dissolved in water in the proportion of 1 part of arsenic to 120 of water by weight. Pure (not methylated) alcohol can then be added until only the least possible deposit is present on evaporation, as previously stated. Most persons will probably find it better to have the arsenic prepared by a chemist, rather than attempt the preparation themselves.—R. McLACHLAN, Lewisham: May 16th, 1893.

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## Obituary.

*J. F. M. Bigot*, who was born in 1818, died at Paris, where he had practically resided all his life, on April 14th, 1893. He had been a Member of the Entomological Society of France since 1844, and his first paper was published in its *Annals* in 1845, as were most of those that followed. He was a prolific writer on *Diptera*, but the quality of his work did not find favour amongst the students of that Order, and did not escape severe criticism.

*Charles N. F. Brisout de Barneville*, ex-President and Honorary Member of the Entomological Society of France, died at St. Germain-en-Laye, near Paris, on May 2nd, in his 71st year. He did much good work. His early studies were principally devoted to *Orthoptera*, but it is probably as a Coleopterist, and especially as a writer on *Curculionidae*, that he was best known.

*Professor James Wood-Mason* died at sea on his way home from Calcutta on May 6th. He was the eldest son of a Gloucestershire medical man, and was born in that County in 1846. He was educated at Charterhouse School, and subsequently at Queen's College, Oxford, where he showed a bias in favour of Natural History and Geology, and through the instrumentality of Professors Phillips and Huxley he became Assistant Curator in the Indian Museum at Calcutta, and subsequently

Curator; and also Professor of Comparative Anatomy and Physiology at the Medical College of Bengal. He was a good all-round Naturalist, and was on more than one occasion deputed by the Indian Government to investigate the causes of failure of crops, and he also recently took part in a deep sea dredging expedition. As an entomologist his attention was chiefly directed to the *Mantida* and *Phasmida*, in both of which Families he did much good work spread over a multitude of papers, and he was engaged on a General Catalogue of the former Family, which is in part published. He also wrote much on Indian Butterflies, chiefly in conjunction with Mr. de Nicéville. He had not been home for many years, and the trying climate of Calcutta, and overwork, had developed Bright's disease, which it was thought a visit to England might cure or alleviate, but it was too late, and he died a few days before he should have reached this country. Wood-Mason was a man of great general knowledge in Natural History, and his death at the early age of 47 is much to be deplored. He leaves a widow and several children.

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## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *April 17th*, 1893.—Mr. W. G. BLATCH, President, in the Chair.

Messrs. R. C. Bradley, W. Harrison, and C. J. Wainwright, each showed long series of *Bombylius major* from Trench Woods, where it was quite common at Easter. Mr. Wainwright showed a long series of *Melanostoma ambigua* and other *Diptera* taken at the same time and place. Mr. A. H. Martineau showed *Prionus coriarius* and other insects from Solihull. Mr. R. Freer read a paper upon "Variation, with special reference to Melanism;" and he showed a number of insects in illustration. He believed that both a deficiency and a superabundance of pigment were pathological conditions. He showed that in those localities where melanic forms mostly occurred, the conditions of life were not very favourable—such were sea shores where food-plants had low nutritive powers; isolated spots where there was much in-breeding; the neighbourhood of large towns, &c.; and he believed that these conditions of life were the cause in the organism of pathological conditions with melanic results. He believed pigment to be an expression of energy.—COLBEAN J. WAINWRIGHT, *Hon. Sec.*

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LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *May 8th*, 1893.—Mr. S. J. CAPPER, F.L.S., F.E.S., President, in the Chair.

Mr. Robert Newstead, F.E.S., communicated a paper, entitled, "On a successful method of rearing *Deilephila galii*," in which he gave his experience of rearing this species in 1888, and stated that cold was fatal to the larvæ, and that forcing was absolutely necessary for the pupæ. The author also added some notes on "*Lepidoptera* attracted by honey dew." The President exhibited some fine varieties of *Boarmia rhomboidaria*; Mr. Collins, *Hadena suasa*, and a Lancashire specimen of *Boarmia abietaria*; Mr. Deville, African *Pieridæ*; Mr. Sharp, *Coleoptera* from Wales; Dr. Ellis, *Coleoptera* from Grahamstown, South Africa; Mr. Watson, *Papilio Macleayana* and *P. Sarpedon*.—F. N. PIERCE, *Hon. Sec.*, 7, The Elms, Dingle, Liverpool.

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THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:  
*April 13th, 1893.*—J. JENNER WEIR, Esq., F.L.S., President, in the Chair.

Mr. Edwards exhibited, through the President, a specimen of *Papilio Jovindra* from the Himalayan region, Mr. Weir remarking that the species was a mimic. Mr. R. Adkin read an extract from an interesting letter addressed to Mr. Billups by Mr. T. D. A. Cockerell from Jamaica, and exhibited the leaves containing the species of *Coccidæ* referred to. Mr. Manger exhibited *Dorippe japonica*, a Crustacean from Japan. Mr. Adkin exhibited a small collection of Sphinges and Bombyces from Sutherlandshire, consisting of *Sesia scoliiformis*, Bork., *Arctia Caja*, L., *Dicranura vinula*, L., *Orgyia antiqua*, L., *Nemeophila plantaginis*, L., and *N. russula*, L., the male specimen of which had smoky hind-wings, and *Odonestis potatoria*, L., the coloration of the female being intermediate between the sexes. The Secretary, Mr. H. Williams, read a letter from Mr. Robson, of Hartlepool, requesting aid from Members of the Society in filling up forms he had prepared, asking for certain information as to meteorological conditions, &c., when sugaring for *Noctuæ*, and thus, by comparing results from different parts of the country, Mr. Robson hoped to come to some conclusion regarding some of the anomalies of this subject. Mr. Robson said he would be happy to send forms to any applicant for same. Mr. Turner reported the capture of *Eupithecia nanata*, Hb., *Ematurga atomaria*, L., and larvæ of *Thera firmata*, Hb., *T. variata*, Schiff., and *Elloperia fasciaria*, Schiff., and Mr. Carpenter said that *Thecla rubi*, L., had been taken at Eynsford, Kent, on April 3rd, and *Syrichthus malva*, L., on April 9th. The remainder of the evening was devoted to a long discussion with regard to the proposed excursions of the Society during the ensuing summer.

*April 27th, 1893.*—The President in the Chair.

Mr. Tutt exhibited a series of *Tapinostola concolor*, Gn., from Cambridgeshire, and remarked upon the extremely restricted range of this species, and in how very few localities it had been taken in any number, and he pointed out the confusion that had arisen with regard to the nomenclature of this insect in consequence of Hübner's figure of *T. extrema* having blackish cilia. Mr. Weir mentioned that specimens of *Polyommatus dispar*, Haw., had fetched £6 each on Tuesday last at Stevens' Auction Rooms. Mr. W. H. Wright exhibited a very long and variable series of *Bombyx castrensis*, L., bred from larvæ captured on the banks of the Medway, and mentioned that his experience was that unless the larvæ were, say, within about a week of being full-fed when captured, they usually refused to feed and seldom came to maturity. Mr. R. Adkin and Mr. Tutt both corroborated this view, stating this species was especially resentful to a change of habitat. In proof of the recent extraordinarily fine weather, Mr. Tutt mentioned that *Melitæa Cinxia*, L., and other June species were on the wing in Guernsey, and that *Lycena Argiolus*, L., was flying at Hereford during the first week in April, and Mr. R. Adkin noted the rare occurrence of the Blackthorn (*Prunus spinosa*) and Whitethorn (*Cratægus oxyacantha*) being in blossom at the same time. In the course of some remarks upon *Colias Edusa*, Fb., Mr. Tutt said it ought to have had a good chance of hibernating here this last winter. In Algeria and Marocco it could be got in all its stages, with the exception of the egg, nearly the whole year through, and that in the Mediterranean littoral it practically did not hibernate at all, but one brood followed the other in rapid succession.

ENTOMOLOGICAL SOCIETY OF LONDON: *May 10th*, 1893. — HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

Mr. A. Cowper Field, of 81, Wiltshire Road, Brixton, S.W., was elected a Fellow of the Society.

Mr. R. McLachlan exhibited, for Dr. Fritz Müller, of Blumenau, Santa Catarina, Brazil, specimens of larvæ and pupæ of a Dipterous insect, *Pallotoma torrentium*, and read a letter from Dr. Fritz Müller on the subject. The writer stated that these larvæ were of the same nature as those exhibited by Mr. Gahan at a Meeting of the Society in October, 1890 (*cf.* Proc. Ent. Soc., 1891, p. ii).

Mr. S. G. C. Russell exhibited *Hesperia alveolus*, var. *Taras*, taken by him at Woking in April last.

Mr. J. M. Adye exhibited a long series of *Moma Orion*, *Eurymene dolabraria*, *Amphidasis betularia*, and *Chloeophora prasinana*, and a few specimens of *Notodonta dodonea*, *N. chaonia*, and *N. trepida*, *Acronycta alni*, and *Selenia illustraria*, all bred by him in March and April last, from larvæ obtained in the autumn of 1892 in the New Forest.

Mr. H. Goss read a copy of a letter received by the Marquess of Ripon, at the Colonial Office, from the Governor of the Gold Coast, reporting the occurrence of vast swarms of locusts at Aburi and Accra, West Africa, about the middle of February last. The writer stated that at Accra the swarm extended from east to west as far as the eye could see, and appeared to occupy a space about two miles wide.

Colonel Swinhoe stated that some years ago he had been requested by the Indian Government to report on plagues of locusts. He said he had witnessed swarms of these insects far larger than the one just reported from the Gold Coast, and mentioned that many years ago, when going up the Red Sea in one of the old P. and O. paddle-boats, the boat had frequently to stop to clear her paddle-wheels from locusts.

Mr. C. G. Barrett called attention to a field excursion to the Cotswolds which it was proposed to have in June. Fellows of the Society were requested by the President to communicate to Mr. Barrett, as early as possible, their views as to the dates which would be most generally convenient for such excursion, and to offer any other suggestions on the subject which might occur to them.

Mr. E. C. Reed, of Valparaiso, Chili, communicated a paper, entitled, "Notes on *Acridium paranense*, the migratory locust of the Argentine Republic." Colonel Swinhoe, Mr. Champion, Mr. Elwes, Mr. McLachlan, and Mr. Merrifield took part in the discussion which ensued.

Professor L. C. Miall communicated a paper, entitled, "Dicranota: a Carnivorous Tipulid Larva."

Dr. T. A. Chapman communicated a paper, entitled, "On a Lepidopterous pupa (*Micropteryx purpurella*) with functionally active mandibles." Mr. McLachlan said Dr. Chapman's observations were of great value, and tended to show that the position of *Micropteryx* was nearer the *Trichoptera* than had been supposed.

The President announced that the new Library Catalogue, which had been edited by Mr. Champion, with the assistance of Mr. McLachlan and Dr. Sharp, was now ready for sale to the public at 9s., and to the Fellows of the Society at 6s. a copy.—H. Goss, *Hon. Secretary*.

# EXPLANATORY NOTICE OF MY VIEWS ON THE SUB-ORDERS OF DIPTERA.

BY C. R. OSTEN-SACKEN.

Through the communications of some of my correspondents since the publication of my paper "On the characters on the three divisions of *Diptera*, &c." (in the Berl. Ent. Zeitschr., xxxvii, 1892, pp. 417—66), I became aware that some misconceptions prevail in certain quarters about my views on the larger sub-divisions of the Order *Diptera*, called sub-Orders by Brauer. The fault apparently is on my side, as I have not been explicit enough on pages 426—8 (*l.c.*) of the above quoted paper. On page 423, line 6 from top, instead of "All the other *Diptera*," I should have put—" *Orthorrhapha Brachycera* and *Cyclorrhapha Athericera*;" and on page 429, line 18 from bottom, I should have added the same five words at the end of the line which begins with the word "foot-note." I beg my readers to make this alteration at once.

Macquart had *two* sub-Orders, *Nemocera* and *Brachycera*; Brauer had also *two*, *Orthorrhapha* and *Cyclorrhapha*, but the dividing line between them was at a different place from that of Macquart's. In consequence of the considerations explained at length in my paper, I adopt *three* sub-Orders, and call them *Orthorrhapha Nemocera*, *Orthorrhapha Brachycera*, and *Cyclorrhapha Athericera*\* (*l.c.*, p. 427, in the middle). In other words, I adopt Brauer's nomenclature, except that his *Orthorrhapha Brachycera* I consider as a separate sub-Order, while he considered it as a division, which, together with his division *Orthorrhapha Nemocera*, formed his sub-Order *Orthorrhapha*. His sub-Order *Cyclorrhapha* I call *Cyclorrhapha Athericera*.

In the same place I said (*l.c.*, p. 426), "Family names in Zoology must consist of one word only; but there is no inconvenience in using compound names for larger divisions. They are not exactly *names* but *designations*, they must have something of the descriptive character in them, &c."

The three names of the sub-Orders which I adopt have the advantage of being descriptive of a character taken from their metamorphoses on one side, and of another character taken from the imago and its principal organ of orientation (the antennæ) on the other. The names *Orthorrhapha* and *Cyclorrhapha* were very happily chosen by Brauer to characterize the metamorphoses of each of the groups, and should therefore be preserved. The names *Nemocera* and

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\* Derived from the Greek *ather*, arista, awn, and *keras*, horn.

*Athericera* were adopted for two groups by Latreille, and should likewise be retained. Finally, the name *Orthorrhapha Brachycera* was used by Brauer himself for a division which I consider as a sub-Order. The position of the *Pupipara* I leave an open question.

Within the three sub-Orders there are groups of Families which I called *divisions*, and of which I characterized *two* in the sub-Order *Orthorrhapha Nemocera*, and *one* in the *Orthorrhapha Brachycera*. Future workers will perhaps succeed in grouping the remaining Families in the same way; until this be done these Families can be retained *in statu quo ante*.

The arrangement which I conceive at present is, therefore, as follows:—

I.—ORTHORRHAPHA NEMOCERA.

*Nemocera vera*.

*Nemocera anomala*.

II.—ORTHORRHAPHA BRACHYCERA.

*Eremochata*.

.....

III.—CYCLORRHAPHA ATHERICERA.

.....

.....

One more word about the division *Nemocera anomala*. I called it *artificial* for want of a better expression, although the Families which compose it are connected by characters of the utmost importance (*l.c.*, p. 429 at the top), most of which never occur in the *Nemocera vera*. Only the grouping of these Families is less compact than is the case in the *N. vera*, the gaps between them are broader, and the transitions less apparent. But it may happen that further discoveries will bridge over these intervals, and convert this division, now somewhat artificial, into a compact or natural one. The opposite case may also happen: that future discoveries may necessitate a further sub-division. Or we may admit a still different possibility; that the transitional forms are, at present, entirely extinct, but that in earlier epochs the division was a natural one. The characters of the Families which compose the division *N. anomala* do not exclude any of these possibilities. At any rate, it is evident that such an artificial or provisional division is indispensable for the present. It has nothing in common with a mere grouping of Families or Genera *incertæ sedis*, which have no connection whatever between them.



A SINGULAR GENUS OF *CAPSIDÆ*.

BY DR. O. M. REUTER.

My friend, Dr. E. Bergroth, has sent me for examination a specimen of a very curious *Capsid*, found by Mr. J. J. Walker in Tasmania. This insect belongs to a new genus, for which it is necessary to form also a new division. The hemielytra without cuneus and embolium are shaped and punctured nearly as in the Family *Lygæidæ*, with which this insect accords, also by the long first joint of the tarsi, but the membrane is constructed as in *Capsidæ*. The antennæ resemble those of a *Cimex* or of some *Anthocoridæ*, and also the general appearance, the broadly oval body, and the ferruginous colour, remind a little of the bed bug. I have named the genus *Lygæoscytus*, and the species *cimicoides*. It is probably of old geological age.

Divisio *LYGÆOSCYTARIA*, *n. d.*

Caput nutans, subtrigonum, ante oculos longe productum, vertice sulco longitudinali destituto, loris baud discretis, genis humillimis, gula horizontali, medio longitudinaliter late deplanata. Oculi orbita interiore haud emarginati. Antennæ articulis duobus ultimis gracillimis. Pronotum strictura apicali nulla, lateribus marginatis, margine toto acuto. Scutellum basi detectum. Hemielytra formæ macropteræ embolio et cuneo baud discretis, fractura cunei incisuraque externa marginis ante apicem nullis, margine laterali externo usque a basi dilatato. Membrana parvula, area unica angusta, vena suturæ membranæ subparallela. Coxæ posticæ ab epipleuris hemielytrorum late distantes. Tarsi articulo primo secundo duplo longiore, tertio primo paullo brevior. Unguiculi breviusculi, leviter curvati, aroliis nullis.

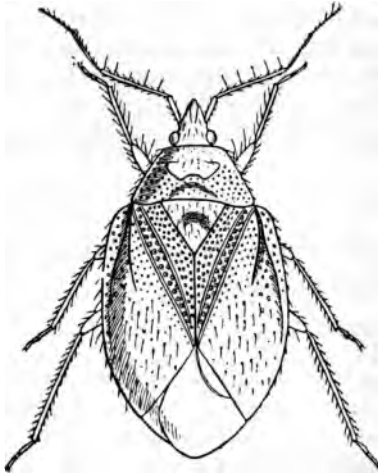
*LYGÆOSCYTUS*, *n. g.*

Corpus late rotundato-ovale, sat deplanatum, superne impresso-punctatum. Caput pronoto multo angustius, nutans, vertice immarginato, fronte medio planiuscula, clypeo cum fronte confluyente, ejus basi in linea inter scrobis antennarum ducta posita, bucculis angustis, insertionem antennarum haud attingentibus. Oculi totam altitudinem laterum capitis occupantes a latere visi ovati, ab antico visi orbita interiore subparalleli, apice paullo divergentes, orbita posteriore parum sinuati. Antennæ articulo primo apicem capitis paullo superante, secundo primo æque crasso, sublineari, duobus ultimis gracillimis. Rostrum coxas posticas superans, gracile, articulo primo marginem posticum partis apicalis oculi attingente, articulo secundo duobus ultimis simul sumtis paullo brevioribus, his longitudine æqualibus. Pronotum trapeziforme, apice capite latius, basin versus fortius dilatatum, margine basali supra scutellum levissime sinuato, callis distinctis, disco pone eos transversim late depresso. Scutellum basi declivi detecta. Hemielytra pronoto latiora, lateribus rotundato-dilatata, vena clavi venaque brachiali corii elevatis subparallelis, sutura clavi deleta, vena corii cubitali solum basali parte distinguenda, corii limbo laterali exteriore basin versus late explanato-dilatato, basi late dilatato. Xyphus prosterni

planus, tenuiter marginatus. Metastethium orificiois angustis, crasse marginatis. Coxæ posticæ approximatae. Pedes pilosi, tibiis spinulis destitutis, pilis tenuibus semiadpressis.

*LYGÆOSCYTUS CIMICOIDES, n. sp.*

Ferrugineus, flavo-pilosus, pilis retrorsum vergentibus, capite pronoto antice



basique scutelli minute punctatis, pronoto postice hemielytrisq. profunde et grosse impresso-punctatis, corio versus apicem paullo subtilius et obsolete punctato; corio intus fuscescenti-ferrugineo, membrana cinereo-fumata; capite apice nigro; antennis pedibusq. flavo-testaceis, illis articulo primo annulo basali et apicali piceis. Long.,  $4\frac{1}{2}$ , lat.,  $2\frac{1}{4}$  mm.

Patria; Tasmania, Franklin, Huon River, D. J. J. Walker (Mus. Brit.).

Caput latitudine cum oculis paullo longius, parcius minute punctatum, vertice oculo (♀) duplo latiore. Oculi fusco-ferruginei. Rostrum articulo primo ferrugineo, secundo pallide flavescente, duobus ultimis piceis. Antennæ subtiliter pilosæ, articulo secundo pronoti longitudine et primo duplo et dimidio longiore, pilis nonnullis longissimis exsertis, duobus ultimis longitudine æqualibus, simul sumtis secundo parum longioribus. Pronotum basi quam apice duplo latius, latitudini apicali æque longum, callis parteq. apicali parcius, ad marginem anticum tamen densius minuteque punctatis, parte posteriore lateribusque usque in marginem grosse impresso-punctatis. Scutellum æquelaterum. Hemielytra medio pronoto fere duplo latiora, usque in marginem impresso-punctata, punctis magnis circa venas seriatis, sutura membranæ commissura paullo brevior. Femora inferne pilis longissimis exsertis.

Helsingfors: *March*, 1893.

## DESCRIPTION OF A NEW SPECIES OF ORTHOPTERA FROM THE TRANSVAAL.

BY H. DE SAUSSURE, HON. F.E.S., &c.

### ACRIDIIDÆ.

#### XIPHOCERA ENSICORNIS, n. sp.

Grisea vel fusca, minute sabulosa, vitta longitudinali corporis utrinque pallida, de reliquo fusco-lineata et punctata. Antennæ modice late ensiformes, articulis 1°, 2° aurantiis; articulis ultimis 5 moniliformibus, 5°, 6° ab apice (pars intermedia) deplanatis.

*Frons* in processum distinctum apice rotundato-truncatum producta. *Vertex*

horizontalis, rostro regulariter trigonali, marginibus quoque arcuatis, apice rectangulo. Carinæ laterales scutelli verticis obsoletissimæ.

Pronotum antice et postice acutangulum; crista elevata, regulariter arcuata, in prozona integra, in metazona crenata. Pars dorsalis pronoti tuberculis subacutis elevatis conspersa, saltem in parte postica. Sulci 3 parum impressi, lacunis translucidis nullis.

Pedes antici haud granulati, pedes postici sabulosi etsi in tibiis. Femora postica ad 2<sup>um</sup> typum\* pertinentia, quoque modice lata, margine supero subrecto ante condylum tamen subsinuato, spinis 10—12, in condylo 3 seratiformibusque. Margo inferior vix arcuatus, subtiliter spinulosus. Tibiæ posticæ extus spinis 10.

Abdomen basi granulatum, apice punctatum, carinatum; segmentis ultra medium dente trigonali armatis.

♀. Long., 55, long. pronot., 15, fem. post., 20, latit. femor. post., 6, latit. antennæ, 2 mm.

*Hab.* : Transvaal, Zoutpansberg (Coll. Dist. and de Sauss.).

The colour of this *Xiphocera* is very variable, as in all the species. The species comes next to *X. cristata*, Sauss. (*l.c.*, p. 44, 5). It is smaller; the crest of pronotum is regularly arcuate, and has no translucent fenestræ, &c.

Geneva: 1893.

#### NOTES ON NEW OR LITTLE KNOWN COCCIDÆ (No. 4).

BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

#### PLATE II.

#### PSEUDINGLISIA, *n. g.*

♀ adult. Scale elevated, more or less circular, ridged; ventral scale complete, detached; antennæ of four joints; anal lobes very minute; last five segments of body with broad chitinous plates bearing spinnerets; rostrum biarticulate.

#### PSEUDINGLISIA RODRIGUEZÆ, *n. sp.*

♀ adult (fig. 1). Dark purplish-red, mottled with lighter red; elongate-ovate, widely rounded in front, gradually narrowed behind the insertion of posterior legs; somital divisions very distinct in the living insect; margins of the segments at the sides bearing very long hairs, which gradually shorten as they near the anus, and are almost wanting on the cephalic margin. Eyes very large, projecting, somewhat in the form of a truncated cone, unicolorous with the body. Antennæ (fig. 1a) of four nearly equal joints; 1st much contracted at base, has one or more short stiff hairs; 3rd with three, 4th with two at apex and two a little below them. Rostrum (fig. 1b) biarticulate, apex with two stiff hairs; rostral filaments, which make their exit through the first joint of the rostrum, are very long. Legs (fig. 1c) short, very little longer than the antennæ; trochanter very small; tibiæ grooved, about as long again as the tarsi, the latter without digitules but with a short stiff hair at apex; claws

\* Saussure, *Spinislegia Genavensis*, II, p. 29.

blunt, without digitules. Near the insertion of all the legs, on the posterior side, is a clear, almost circular space (? spiracles). Last five segments (fig. 1*d*) formed of brown chitinous plates, widest at the margin; six of these, three on each side of the pygidium, are more or less pointed at their apices, which terminate near the anal orifice; each plate, except the first pair, with a few rather large spinnerets of the form shown at fig. 1*e*; these spinnerets slightly varying in size, and also as to their number and position. The position of the anal orifice will be seen on referring to the fig. 1*d*. At fig. 1*f* is shown in profile a view of the last five segments in the act of extruding an egg. Pygidium (ventral aspect, fig. 1*g*) very small, attached to the first pair of plates, consists of a very dark chitinous plate, bearing on either side four spines of varied length, as shown in the fig.; in addition to the plate there are two very minute lobes, each bearing a spine, the lobes, however, are very difficult to see in some specimens. There is a divisional line right through the centre of the pygidium, on either side of which, at the inner side of the chitinous plate, are two well defined, clear, rectangular spaces, the posterior margins of which are very finely serrated. The dorsal aspect of the pygidium is as shown in the fig. 1*h*. Above the pygidium are two long, angular, caudal scales, similar to those found in the *Lecanina*; immediately below the caudal scales are two very small spines. This drawing (fig. 1*h*) was made from a specimen mounted without preparation in potash and without pressure, which will account for the slight discrepancy in the outline of the two figures.

Long., 1 mm.; wide,  $\frac{1}{4}$ — $\frac{1}{2}$  mm.

*Scale* (fig. 2, 2*a*). White, sub-opaque and somewhat glassy, circular, or nearly so; conical, except the margins, which are broadly flattened; radiating from the apex are from six to eight (usually seven) strong ridges or carinae, which gradually disappear as they near the margin, where they are often entirely wanting. Ventral scale free, white, complete, sometimes having a central yellowish stain.

Diam., 2—2 $\frac{1}{4}$  mm.; high,  $\frac{1}{2}$ —1 mm.

*Larva*. Antennae of six joints (fig. 3), of which the last two are the longest, and have one or more rather long hairs. Legs (fig. 3*a*) about the same length as the antennae, are short and stout; tibio-tarsal joint very faint, the former with a short stiff hair at apex. The four digitules very slender. Rostrum (fig. 3*b*) bi-articulate. Anus with a very small chitinous plate (fig. 3*c*), very like the portion of the ♀ which I have termed the pygidium, on either side of which are two very long and stout hairs, but whether these originate from true anal lobes I am not able to determine, as I can see no trace of them.

♂ unknown in any stage.

*Hab.*: on *Rodriguezia secunda* at Eaton Hall, Chester, the seat of His Grace the Duke of Westminster, on plants freshly imported from Trinidad, December, 1889, and January, 1890. Received from Mr. Hand, the orchid grower, who kindly supplied a single leaf of the food-plant, on the basal portion of which were many examples of this pretty and interesting *Coccid*.

I am very doubtful as to the position this species should occupy, bearing as it does characters both of the *Lecanina* and the *Coccina*; of the former the anal plates, and of the latter the multiarticulate

rostrum and anal lobes. While examining a living ♀ I saw it constantly retract the dorsal epidermis, on both sides, just behind the antennæ, and considerably within the margin, and then instantly regain its position. The area retracted was comparatively large, and it had much the appearance of an india rubber ball regaining its position after pressure.

#### EXPLANATION OF PLATE II.

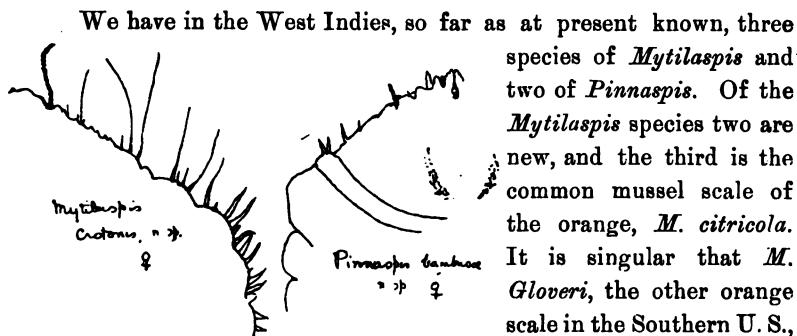
♀ —fig. 1, body under-side; 1a, antennæ; 1b, rostrum; 1c, leg; 1d, last five segments; 1e, spinneret; 1f, profile of last five segments, showing extrusion of egg; 1g, pygidium ventral; 1h, ditto, dorsal aspect; 2 and 2a, scale, profile and dorsal aspect.

Larva—fig. 3, antennæ; 3a, leg; 3b, rostrum; 3c, anal portion of body.

Chester: January, 1893.

### THE WEST INDIAN SPECIES OF *MYTILASPIS* AND *PINNASPIS*.

BY T. D. A. COCKERELL, F.Z.S.



We have in the West Indies, so far as at present known, three species of *Mytilaspis* and two of *Pinnaspis*. Of the *Mytilaspis* species two are new, and the third is the common mussel scale of the orange, *M. citricola*. It is singular that *M. Gloveri*, the other orange scale in the Southern U. S., is not found in the West Indies. I have *M. Gloveri* from Louisiana, sent by Prof. Riley, and it is fully distinct from anything we get here. *Pinnaspis* is a genus I separated from *Mytilaspis* in Journ. Inst. Jamaica, 1892, p. 136. Our two species are *P. pandani* and a new one on bamboo.

#### *MYTILASPIS CITRICOLA* (Pack.), Comst.

This is said to be identical with *M. pinnaformis*, an orchid scale. I have seen no orchid *Mytilaspis* here, although I have been particularly interested in looking for scales on orchids. Supposing *citricola* to = *pinnaformis*, it is rather remarkable that it does not occur on orchids in Jamaica, since it is so very abundant on *Citrus*. It is, however, a fact, that certain *Coccidæ* differ in their food-plants in different countries, although the specimens can be separated by no ascertainable structural characters. Such is the case with *Aspidiotus aurantii*, Maskell, the well-known red scale of *Citrus* trees, which in Jamaica is common on *lignum vitæ*, and occurs on *Cycas* and *Areca*, but never, so far as observed, on any *Citrus*. And there is here no mistake about identity, as Mr. Maskell himself has examined some of the Jamaican specimens. *M. citricola* has been sent to me by Mr. C. A. Barber from Antigua, where it was injuring tangerine orange trees.

*MYTILASPIS CROTONIS*, n. sp.

Found by Mr. J. J. Bowrey in his garden at Kingston, Jamaica. It lives on variegated *Croton* with narrow leaves. The twigs are more or less covered by the scales, which are so exactly the colour of the bark, and so resemble the rugosities natural to the plant, that notwithstanding their abundance, they are only detected on close examination.

The scale is about the shape and size of *M. pomorum*; some show holes through which a parasite has escaped.

The very young larva is active, pale purplish with yellowish extremities. The caudal filaments are about as long as the greatest diameter of the body, but they are easily broken off. Between the tubercles, which bear the long filaments, are two small but distinct tubercles, each bearing two very short bristles. Along the margin, immediately external to the filament-bearing tubercle, is on each side a pair of bristles of fair length. Beyond (anterior to) these is another shorter pair, and further still two more pairs, which are very short and not conspicuous. On the sides of the thoracic region are one or two short hairs. On the margin, anterior to each antenna, is a blunt tubercle, and the anterior cephalic margin presents three pairs of hairs, the middle pair strongest, the outermost pair rudimentary or almost obsolete. The last joint of the antenna presents three or four short but strong hairs. The general form of the larva is oval. The leg shows a strong claw apparently without digitules, but the tarsus has stout clubbed hairs, longer than the claw. In colour these larvae resemble those of *M. Gloveri*, as described by Comstock.

The adult female, as usual in the genus, is elongate. The terminal portions are yellow shading into orange. The lobes are much as in other members of the genus; median lobes separate, well-developed, trilobed; next pair bifid, and smaller; third pair practically obsolete, but two distinct notched projections beyond them.

The really extraordinary character of the adult ♀ is in the spinous plates, which are prolonged into long hairs, after the manner of *Aspidiotus chamaeropsis*, as figured by Signoret. This distinguishes the species at once, but with rough handling the hairs are easily broken off, leaving an appearance like the ordinary spinous plates.

Bright orange mites are common among the scales, and seem to prey upon them. I found one mite inside a female scale, half concealed beneath the body of the female; another actually had hold of a larva. The anterior legs of these mites emit two very long hairs, a character which may perhaps serve to distinguish them.

*MYTILASPIS ALBUS*, n. sp.

I found this in East Street, Kingston, in abundance on the stems of a roadside weed. The plant is one of the *Malvaceæ*, low, shrubby, with a strong odour, yellow flowers, and pubescent or velvety cordate practically entire leaves. Mr. Bowrey tells me it is locally called "sage," but Grisebach applies that name to a different plant, neither, of course, being the true English sage.

The ♀ scale is about  $2\frac{1}{2}$  mm. long, elongate, narrow, mytiliform, convex, sometimes curved. The scales vary much, some being quite long and narrow, others broad. Colour greyish-white, the exuviae, which are of the usual size, reddish-brown. Several of the scales show holes where parasites have escaped.

The adult female is elongate, mytiliform, narrow anteriorly, with three blunt and wide lateral tubercles. Colour brown.

The lobes and plates are much as in other *Mytilaspis* species. Between the median lobes, which are well apart, are two spinous plates. The median lobes are well-formed, rounded, and blunt. The second pair of lobes are more pointed, sometimes indistinctly trilobed; those of the third pair are fairly well developed and notched. Beyond the third lobe are two pointed projections, and anterior to these the margin is more or less scalloped, with a couple of distinct incisions. There are spinous plates, as usual, between the 1st and 2nd, and 2nd and 3rd lobes.

The male scale occurred in some abundance. It is about 1 mm. long, straight, with parallel sides; larval skin at one end. Scale greyish-white; larval skin orange. The scale has no keel, of course; it resembles the ♂ scale of a *Parlatoria*.

On the same plants I found *Chionaspis minor*, Mask., *Aspidiotus* sp. (very near to, perhaps identical with, *A. punicea*, n. sp.,\* which I found on pomegranate), and a *Pseudoparlatoria*, so similar to *Ps. ostreata*, that I believe it to be only separable as a slight variety. When I first found *Mytilaspis albus*, seeing the tricarinate male scales of *C. minor* on the same plant, I thought I had got a new *Chionaspis*.

This *Mytilaspis*, being white, cannot well be confounded with any other American species. Maskell has described white species from New Zealand, which appear to be distinct from *M. albus*.

#### PINNASPIS PANDANI (Comst.).

According to Mr. Morgan, this should be referred to *P. buxi*, Sign. It occurs in Jamaica on cocoa-nut and *Dracæna*; and Mr. Hart sent it to me from the Royal Botanic Gardens, Trinidad, where it was found in abundance on the leaves of *Pandanus*. In the Trinidad specimens it was accompanied by *Ischnaspis filiformis*, Doug.

#### PINNASPIS BAMBUSÆ, n. sp.

I found this abundantly on a section of bamboo stem, which had been used for a flower pot at the Hope Gardens, Jamaica. Of course the specimens were all dead.

♀ scale about 1 mm. long, mytiliform, pale horn, with a median keel, and inclined to be tricarinate. First skin very small, second skin large and extending forward, as usual in the genus. Ventral scale more or less developed. The second skin is covered by secretion.

The adult female (after boiling in caustic soda) is elongate, pale yellowish.

The median lobes, as in *P. pandani*, are closely approximated, and notched without. The second lobes are small, and the third rudimentary, followed by a notch in the margin. Between the first and second lobes is a small spinous plate, but between the second and third a large plate. On the margin, beyond the notch, is a spine, and then a large spinous plate. Then follows, at a fair distance, a smaller notch, and then another spine and spinous plate. Further, on the side of the segment adjacent to the caudal portion, are two large spinous plates. Thus, the arrangement is very much as in *pandani*, and, except for the rather different scale, it would not be easy to separate the two. *Chionaspis minor*, Mask., which is easily distinguished by its scale, has also a very similar arrangement of plates and lobes.

\* I could not be sure about these specimens, as nearly all had been destroyed by parasites. *A. punicea*, which I shall describe at length in a future paper, occurs on the leaves of pomegranate in Kingston, Jamaica, and has been found by Mr. C. A. Barber on cocoa-nut in Dominica. The scale is white, covered with orange-brown exuvise, the first skin nipple-like. The terminal lobes and plates show much resemblance to those of *A. ancytus*. Mr. Morgan's *A. dictyospermi* is allied, but fully distinct.

In the body of a ♀ *P. bambusa* I found a parasite. I could make out the antennæ, which seemed to resemble those of *Anaphes*, but there was one joint less to the funicle, and the club was smaller in proportion.

Institute of Jamaica, Kingston, Jamaica :  
February 20th, 1893.

# OCCURRENCE OF *GELECHIA* (*BRYOTROPHA*) *FIGULELLA*, STAUD., IN ENGLAND.

BY C. G. BARRETT, F.E.S.

Last summer the Rev. C. T. Cruttwell sent the very few *Tortricæ* and *Tineina* which the then stormy and wet weather had allowed him to secure during a fortnight's visit to Aldeburgh, Suffolk, for examination. Among them was a *Gelechia* (*Bryotropha*) evidently allied to *terrella*, but with rather shorter wings, which I was unable to identify. Recently, with the kind aid of Lord Walsingham and Mr. Hartley Durrant, it has been recognised as *figulella*, Staudinger.

Mr. Cruttwell says of this specimen, "It was captured on waste land, or salt marshes near the sea, on the coast of Aldeburgh, between July 6th and 20th, 1892."

Of this species Mr. Stainton records in the "*Tineina* of Southern Europe," that he reared four specimens between April 6th and 27th, one from a larva found on February 28th in sand at the roots of some plants of *Silene nicaensis* in a sandy wood near the sea to the east of Cannes, and the others from cocoons found in the sand at the same time. This larva he described "Whitish-ochreous; head pale brown, mouth darker; second segment with a dark brown semi-crescent on each side; dorsal line slender, reddish-ochreous; subdorsal lines dark brown, paler anteriorly; spots minute, black; anal segment glossy." This larva did not eat, but spun up immediately, and its food is therefore uncertain. It was accidentally found while Mr. Stainton was collecting larvæ of a species which he named *Gelechia provinciella*, and which had evidently fed in numbers on the *Silene*. But the habits of the group to which the present species belongs would indicate some grass as a more probable food.

The moth is smaller than ordinary *Bryotropha terrella*, with proportionately broader fore-wings, the costa of which is decidedly arched before the middle; very glossy, grey-brown with a reddish flush; from the base along the fold is a dark clouding of atoms which rather obscures the usual black dots; fascia paler brown, sharply elbowed, but indistinct; and the apical portion beyond the fascia clouded with rows of minute blackish dashes. Hind-wings shining pale grey, darker at the apical margin, cilia grey, rather paler.

Staudinger found it at Chiclana, Spain. Lord Walsingham has taken a fine series near Mr. Stainton's locality in the south of France.

39, Linden Grove, Nunhead, S.E. :  
June, 1893.



## COURTICE'S BREEDING CAGE, WITH VARIATIONS.

BY H. G. KNAGGS, M.D., F.L.S.

In my early collecting days my good old friend, the late Mr. Henry Doubleday, showed me a muslin-topped glass cylinder, resting on a pan of damp sand, which he was using as a breeding cage. This seemed to me to be an immense advance on those hideous things like meat safes so much in vogue amongst "Aurelians" in the eighteenth century, which are not even yet extinct. Some time afterwards, having dealings with a glass shade merchant, he informed me that the cut-off bottoms or "rims" went into the waste bin under the cutting board; whereupon it was there and then arranged that he was to save all he could for me at a fair price. By this means scores upon scores of them came into my hands, and were quickly converted into breeding cages for my friends and self by the addition of the perforated plate with muslin stage and top.

Larva rearing thus became so pleasant and instructive, the process of changing food, &c., so easy, the cages so cleanly, and the breeding so successful, that considerable impetus was given to this most fascinating branch of practical entomology.

But, alas! the time came when some other utilitarian found a more profitable use for these rims, and prices consequently went up to a prohibitive figure. It was then that my friend, Mr. J. L. Courtice, set his inventive brain to work to supply the deficiency, and succeeded so well, that at a very trifling cost he produced a cage having many advantages over the original, inasmuch, as the glasses can always be procured and of any desired size, while, owing to its square shape, it occupies less room, and further, can be made to pack safely into a small compass for the purposes of travelling or transmission. This is how it is done.

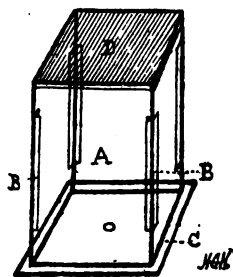
Take four pieces of glass, each of exactly equal size (Mr. Courtice's fancy is three and a half inches by seven); these can be pretty easily cut by an amateur with a decent diamond, a little practice, and *English material*; but any glass cutter will do it for a nominal reward. Of course, if the larva rearer does not mind his cages being all of a size, he can purchase, at an exceedingly low price, foreign glass ready cut for horticultural purposes.

Next take a board of deal, mahogany or other wood, half an inch thick when planed, of any length or width, and with a "three-eighths filletster plane" take out a rabbet, or rebate,  $\frac{1}{8}$  down to within an eighth of an inch of the lower surface, and saw off the length an

eighth of an inch beyond the rabbet, thus leaving the sides G G, which enclose the angle Fa, each an eighth of an inch thick. Then take out Fb and saw off at I, and so on till the board is finished up, a section of one of these lengths is shown at K. If any difficulty should be found in carrying out the above, the angled wood can be procured, at some factory where steam power is employed to cut wood, at a few shillings per hundred foot run.

The next requirement is a square slate an inch or two wider than the base of the cage. This can be sawn out of roofing slates, and perforated in the centre (found by diagonals) by means of a drill bit and hand brace, the hole being afterwards enlarged sufficiently (say to half an inch diameter) with a "half round rynder." Here again, should the work be considered too troublesome, any slater who has the necessary machinery would cut and drill the pieces at a moderate cost. These perforated slates are then brushed over with glue and litharge, or india rubber solution, and covered with canvas or slipper felt, from the centre of which a hole, corresponding to the perforation, has been punched or cut out.

To put the cage together, cut off four pieces of angled wood (B B) a couple of inches shorter than the height; lay them on a table with their angles facing one another in the position of G, Fa, G (fig. 1) and *vice versa*, brush over their horizontal surfaces with hot glue to which litharge has been added, and press on one of the pieces of glass A, moving it backwards and forwards to get rid of air bubbles, and taking care that it is tight up into the angles; serve another pair and



glass the same, leave them for a short time to dry, then turn them up on their sides, the angles facing, and having brushed over two other surfaces, put in a third piece of glass, and, before this is quite dry, the fourth piece, making sure that these fit closely up to the other glasses: then turn the whole up on end on to a flat superficies, such as a marble mantle piece, and press down the glasses so that they touch the level surface at all points. When dry cover the top with muslin D, stand the even base on the felted slate C, and the latter again on a jam pot, and then you have Courtice's cage complete and ready for use.

Touching the variations on this cage referred to in the commencement of this paper: the first is that, in making small cages, such as from two to three inches square (a very useful size), the corners of lucifer boxes, cut off about a quarter of an inch each side of the angles, will be found strong enough to hold them firmly together; if neatness be required, they may be brushed over inside with Berlin black and outside with mahogany stain varnish before glueing in the glasses—this applies to the angled wood of the larger cages. Then again, for travelling or transmission, we can, by graduating the sizes of our cages half an inch, from six inches down to two, easily get a dozen packed into an eight inch (outside measure) cubic box, namely, six of the larger kind, each seven inches high, and six of the smaller, three and three-eighths of an inch high (leaving a quarter inch for felt packing), that is if the perforated stages be not too thick, which brings us to—

Variation in the stages. The material of which these are composed may be modified to suit different requirements. In respect to occupation of space for transmission, slates of thinner and superior quality, such as are used for school purposes, or glass may be perforated, or vulcanite or poroplastic felt might be employed; but all are more costly than roofing slates. For ventilating purposes a piece of No. 8 galvanized wire may be bent into the shape of a square and the ends soldered together; over this may be strained muslin, through the centre of which a sail eyelet and washers have been firmly fixed. This form of stage affords free ventilation from bottom to top of the cage. If this be considered insecure (and it certainly looks more dangerous than it really is), four legs may be added to the wire frame to steady it.

Another way of securing a free supply of air to the cage is by making perforations in the slate in the space which intervenes between the outer circumference of the water vessel and the inner margin of the glass cage, and covering these apertures with muslin; these openings may be of any size, number or shape, even to cutting away all but so much as is enough to hold together the circular portion on which the jam pot rests, to the square part which supports the cage.

If we wish to employ the cage for full-fed larvæ which go to earth, the muslin has to be removed, and means devised to keep the frass from falling on to the soil beneath, and so forming centres of mouldiness, for which reason it is never desirable to use this form of cage until the larvæ are approaching the stage at which they are ready to pupate. Then as large a flower pot as will be covered by the slate (which, by the way, may be circular) should be used, and its interior fitted with two smaller pots fixed base to base in such a way that the lower one covers the hole in the larger pot, while the upper forms the receptacle for the moveable water vessel, and is on an exact level with the larger pot, so that both are accurately adapted to the underside of the slate stage. The space between the smaller and larger pots may then be filled with suitable soil, and the perforated stage placed over it. This pot is also most useful for such larvæ as like to hide themselves when not feeding, in which case sand, soda, rubbish, stones, short bits of bamboo, dead leaves, moss, &c., may be substituted for the soil. With certain alterations it might be made to accommodate hibernating larvæ.

Another way of ventilating the cage is by substituting an inch strip of glass, top and bottom, for the fourth glass side, and covering the intervening space with muslin. By similarly making two opposite sides of net, fixing perhaps a central

twig, placing three or four of these cages side by side, net to net, and allowing a current of air to pass through, our chances of pairing, with a view to the production of hybrids, would be greatly enhanced. No doubt other modifications of this excellent cage will occur to the thoughtful breeder, but I trust that I have already said enough to tempt some of your readers to test the value and versatility of "Courtice's Breeding Cage."

Camden Road, N.W. :

June 3rd, 1893.

*Note on Eccoptoptera, and an error in the "Zoological Record."*—In the "Zoological Record" for 1882 *Eccoptoptera cupricollis*, Chaud., is placed under *Scolytidæ*; and in that for 1891 *Eccoptoptera labrata*, Fair., is recorded under the same heading. It is desirable to correct an error, which appears destined to become perpetuated in this usually accurate publication.

The genus *Eccoptoptera* was established by Chaudoir in 1878 (Rev. Zool. [3], vi, p. 189) for certain species of the Carabid genus *Anthia*; and its assignment to *Scolytidæ* is owing to Motschulsky's having founded a genus *Eccoptopterus*, named by analogy with *Eccoptogaster*, for a Scolytid beetle (Bull. Mosc., 1863, ii, p. 515). Motschulsky's genus, founded on wrong characters, cannot possibly stand, and his species, *E. sex-spinosus*, I have shown to fall, as Eichhoff predicted, under the latter's genus *Platydictylus* (Ind. Mus. Notes, III, i, 64). The genus *Eccoptopterus* therefore lapses. If authors were to indicate the Families of obscure novelties, they would escape being guilty of contributory negligence in the event of their species being wrongly recorded.—W. F. H. BLANDFORD, London : June 6th, 1893.

*Capture of a female Phosphanus hemipterus at Lewes.*—Since 1883, when I first discovered this insect, the male has occurred more or less commonly every year, not only in my garden, but in other parts of the town, but singularly enough I had never been successful in taking the female until the evening of June 4th. When walking home about ten o'clock at night I saw something luminous on an asphalt pavement at the base of a wall, and striking a match to find out whence the light proceeded, I at once recognised what a treasure I had found. I am not aware that the female has been previously recorded from England, and it is very singular that I have not been able to find it before, as I have been on the look out for it for many years, both by day and night. The male seems quite a day insect, in fact, I have never found it at night; it is very fond of sunshine, crawling rapidly at the base of walls, or on the ground close to them. I am inclined to think that the female must live underground, or why cannot I find it? Perhaps some correspondent can offer suggestions which may lead to its capture more freely. As in *Lampyris noctiluca*, the perfect insect closely resembles the larva, but the legs are longer and of a different shape, and it has antennæ.—C. H. MORRIS, Lewes, Sussex : June, 1893.

*Chrysomela gattingsensis*, L., in Sherwood Forest.—I took a specimen of this *Chrysomela* in April in Sherwood Forest on a road; it is the first time I have ever seen it alive, and it appears to have been very scarce of late years. Beetles were

very scarce in the Forest owing to the very dry weather. The only other things I found worth recording were two *Eutheia clavata* in a decaying birch bough, and two *Rhynchites cupreus*, beaten from flowers of mountain ash, which were coming out just as I was leaving. The usual *Cerylon*, *Philonthus splendidulus*, and *Scaphidium quadrimaculatum*, &c., were to be found under rotten bark and in decaying stumps, and *Triplax russica* also occurred. In Newball Wood, near Lincoln, *Hesperia paniscus* was very early, and was nearly over at the time at which it often appears for the first time; it is possible there may be a double brood this year.—W. W. FOWLER, Lincoln: June 20th, 1893.

*A New Catalogue of British Coleoptera*, compiled by Dr. Sharp and the Rev. Canon Fowler, has just been published by Messrs. L. Reeve and Co.—EDS.

*Anoria Plexippus (Danaïs Archippus) in the Atlantic.*—I have recently had occasion to show that the extraordinary immigration of *Danaïs Archippus* to our southern and south-western shores must have been effected by direct flight across the Atlantic from North America, the route with shorter sea passages from Brazil by the Cape de Verde Islands, the Canaries, and South-Eastern Europe, being excluded from probability by the fact that all the *D. Archippus* taken here appear to belong to the North American type and not to the variety *leucogynæ* of South America. This view is further confirmed by the fact, that not more than three specimens were recorded as having been noticed on the Continent of Europe as against twenty-eight captured or seen in this country.

This view has just received unexpected confirmation. While at Glasgow a few weeks ago, Mr. J. J. F. X. King showed me several specimens of *D. Archippus* of the North American type, which had been given him by an officer on one of the vessels trading from Glasgow to New York. These specimens had been taken—somewhere about the year 1880, the exact date was not preserved—on board the vessel on its voyage out, upon the Atlantic, at a distance of from 200 to 300 miles from the British shores. They were playing about the rigging of the vessel, and the captor, who was not an entomologist, supposed them to be British insects. There can, I think, be no doubt that these were a portion of a migratory swarm on its way here. Yet it is curious that no specimens appear to have been seen in Ireland.—CHAS. G. BARRETT, 39, Linden Grove, Nunhead, S.E.: May, 1893.

*On a variety of Thecla rubi.*—I noticed in the last number of his new work Mr. Barrett mentions *Thecla rubi* being taken in Norfolk with a black oval spot. This form occurs quite as freely as the white spotted form on Cannock Chase, and I never thought it was anything out of the way. This insect feeds here on bilberry (*Vaccinium myrtillus*), and I have occasionally beaten it from birch, round which trees the perfect insect is very fond of flying. The caterpillar is fond of eating its brother's fresh pupa, thus resembling *T. w-album*.—RICHARD FREEB, Rugeley, Staffordshire: May 20th, 1893.

*Aporia crataegi introduced.*—When visiting the larvæ breeding ground of Mr. Edmonds, at Windsor, which is a most interesting place to visit, his manager, Mr. Cyril Bowen, mentioned to me that he had for some years past imported *Aporia*

*orategi* from the continent, and had allowed numbers of them to escape, but he had never found them breed there until last year, though he had regularly looked for them. Last year, however, he took a number of the butterflies in a field which he pointed out to me, close to where their progenitors had been turned out. This year, I believe, he had not found them up to June 10th; but perhaps it is too early for them, notwithstanding the forwardness of the season.—F. MERRIFIELD, Brighton: June, 1893.

[This information has an important bearing as regards some remarks by me in our last No.—R. McLACHLAN].

*Early appearance of Satyrus Janira and Hesperia Actæon.*—On May 26th I went down to the Burning Cliff and saw both *S. Janira* and *H. Actæon* on the wing. *L. sinapis* and *E. glyphica* appeared here on May 2nd.—C. W. DALE, Glanvilles Wootton: June 7th, 1893.

*Note on Hesperia Actæon.*—This little butterfly is more widely spread on the Dorset coast than Mr. McLachlan imagines. I have taken it in six different localities, from Punfield Cove, near Swanage, to Preston Coast Guard Station, two miles from Weymouth. It also occurs on the range of hills running through Purbeck, and on the Ridgeway Hill near Upwey. It has also been recorded as being taken near Lyme Regis, Sidmouth, Torquay, and Truro. The earliest and latest dates of its appearance are May 26th, 1893, and September 15th, 1890. As long as collectors confine themselves to the second brood, I do not think it will become extinct.—ID.

*Leucophasia sinapis near Reading.*—This sunny spring has been very favourable for *Leucophasia sinapis*; they were in great force here. Morning up till about 10.30 or so, and afternoon when the sun begins to lose power, is the time they fly; in the hottest part of the day they retire to the thicket to rest or take a nap. Slowly and lazily they thread their way, low down, in the thickest part of the wood where one could hardly walk, and where it is impossible to use the net, but continually popping out and flying along the rides, or stopping to hang on to the flowers of *Orobis tuberosus*, where they are the easiest things imaginable to catch. Look up and down a ride in the morning they are always in view—half a dozen in the net at a time with ease; a hundred might soon be taken. Pretty little things they are, and vary nicely—black tips, grey tips more or less, and sometimes altogether white. Large thickly wooded tracts and dense undergrowth seem to afford this weakly species a necessary protection; it is here only they are to be found in abundance.—W. HOLLAND, Southampton Street, Reading: June, 1893.

*Lepidoptera in South Wales.*—Early in May I was down at Swansea, and insects were early there as here at home. *Melitæa Artemis* was unusually abundant, up hill and down, parks, meadows, commons, lanes, and sandhills—*Artemis* was everywhere; a larger form than those from Reading, with dark yellowish interspaces where ours are almost white. One afternoon I paid a visit to the extensive sandhills above Swansea to look up larvæ of *Leucania littoralis*. *Aspilates citraria* was plentiful here, starting freely from the hummocks and the dwarf sallow in the

afternoon sunshine. *Hypsipetes impluviata* among the alders—beautifully variable too, black and greenish-black—forms which if placed alone in a box, without the more ordinary ones, would puzzle any one. But *L. littoralis*, how abundant to be sure! nearly full fed. On the sand rush after dark we collected some four or five hundred on a comparatively few hummocks, and considering there were miles of these hummocks, the number of the larvæ must be enormous. We carried them away in a large muslin sleeve, from which they immediately began to bite their way out. The work proved interesting, and I lost my train. The house where I slept that night was on the side of a hill, and in the morning I stepped out of my bedroom window on to a hillside covered with a small wood, chiefly beech, which served to amuse me till time for the early train into Swansea. A colony of *Tephrosia biundulata* was here, about eighty per cent. of which were beautiful black, or brown-black, with intermediates of grey or greyish-brown down to the ordinary pale form, these latter proving quite rare. A fine female *Stauropus fagi* also was on one of the small trees. A day or so after I found several more *fagi* among some beeches a mile or so further on. *Macroglossa bombyliforinis* was common in meadows near Swansea, flying to flowers of *Pedicularis* and *Ajuga*. *Chelonia plantaginis* common in the same meadows, almost my first acquaintance with this species, strange to say. The queer little *Hydrelia unca* starting up from the rushes and long grass in the damper parts, never till the sun was out. *Nola cristulalis*, commoner than at Reading, more black *biundulata*, and dark forms of *T. punctulata*, on the trees near, are perhaps worth mentioning. A friend who was out with me one day took a *Sesia sphegiformis* in an alder plantation; I had not heard of it for Wales before. One thing seems to be always abundant at Swansea, that is *Bombyx rubi*. Every year when I go down there is *B. rubi* rushing about Sketty Park and the fields around it, each night for the last hour and a half before the sun goes down—not one moth now and then, but lively groups in mad career. The larvæ of this species feed with us on heath, but at Swansea they probably feed on the coarse grass so abundant there, among which I have taken the female at dusk laying its eggs. Capt. Robinson had grand success with his moth traps during my stay; they kept him in almost a constant supply of rarities, good species and varieties difficult to be got in other ways. One night he had the greater part of the Prominents, besides other good things. Moth traps will not work with me living in the town where there are so many lights, but any one living where they can place the traps in a good wild place near a wood, like Capt. Robinson's is, should rig some up at once—there is no doubt about the success.—ID.

*A gynandromorphous Smerinthus populi*.—On May 24th, from one of my pupæ which I had kept all the winter, a poplar hawk moth (*S. populi*) emerged, which was neither male nor female, but both; on its left side it had a male antenna and a small wing like the male, on the right side a female antenna and a large wing like the female. The under wings were crippled, and one was covered by a small bit of membrane. Can you explain this?—S. O. BROWN, 10, Pevensey Road, St. Leonards-on-Sea: May 31st, 1893.

[The piece of membrane on the hind-wing was a fragment of that enveloping the moth within the pupa skin, and from which it had not freed itself in emerging.—EDS.].

*Argyrolepia Baumanniana* near Basingstoke.—Taking the advice of a friend to try for *Argyrolepia Baumanniana* amongst *Scabiosa succisa*, I did so by brushing about amongst it in the daytime, and so obtained a few, but by going over the same ground in the evening between 6 and 8 o'clock, I found that they were disturbed very readily, and I netted about two dozen in half an hour, whereas, in the day, I could only obtain half a dozen after a couple of hours' work. It was only amongst *S. succisa* they were to be obtained, which plant grew in such abundance that it was almost the only plant, except coarse grass, that was to be found; other places in the same locality where the *Scabiosa* was scarce failed to produce *A. Baumanniana*, which fact seems to point to *S. succisa* as a probable food-plant.—A. H. HAMM, 24, Hatherly Road, Reading: June, 1893.

*Sesia sphegiformis* at Basingstoke.—Whilst brushing about amongst *Scabiosa succisa* for *Argyrolepia Baumanniana* near Basingstoke on May 21st, my attention was attracted to what I thought was a large black Ichneumon, which was hovering round a stem of alder some three or four inches from the ground, and it was not until it alighted for a moment that I recognised it as a clearwing; however, it gave me no time for reflection, for it was off and round another alder stem in the same way, when I fortunately bagged it, and, to my surprise, found I had netted a fine ♀ *Sesia sphegiformis*. I at once began to look for it in earnest, but several hours' work did not produce any more. I spent the greater part of next day in looking for it, but did not take another, although I saw one but unfortunately missed it; however, it must have been fairly plentiful, for the empty pupæ cases could be found readily enough sticking out of the alder stems about three or four inches from the ground, and several times I found two in one stem.—ID.

*Some early dates.*—The following imagoes I have myself either captured or bred:—\**Cilix spinula*, April 3rd; \**Rumia cratagata*, April 19th; *Venilia maculata*, May 3rd; *Hadena oleracea*, May 4th; \**Hadena pisi*, May 8th; *Plusia chrysitis*, May 9th; *Melanthia ocellata*, May 12th; *Emmelesia albulata*, May 14th; \**Arctia Caja*, June 5th; *Plusia pulchrina*, June 10th; *Noctua angur* (quite worn), June 15th; *Cidaria fulvata* (worn), June 17th; \**Cosmia trapezina*, June 18th. Those marked \* are bred. I have to-day (June 18th) a larva of *Vanessa Atalanta* hung up preparatory to changing to a pupa!—P. L. BABINGTON, Walmer House, Tonbridge: June 18th, 1893.

*Vespa arborea*, Sm., in Ireland.—A number of female wasps, captured in April and May by Mr. R. M. Barrington near Bray, Co. Wicklow, and kindly forwarded by him, included, besides numerous *Vespa vulgaris*, *V. rufa* and *V. norvegica*, a single *V. sylvestris* and two examples of the rare *V. arborea*. This species has not yet been recorded as Irish. Like many northern and mountain forms it may prove not uncommon in this country if looked for. The only British species of *Vespida* now unknown in Ireland is *V. crabro*, the hornet.—GEO. H. CARPENTER, Science and Art Museum, Dublin: June, 1893.

[I have seen these examples, and they certainly are *Vespa arborea*; still it is a very curious fact that both worker and male are unknown. The ♀ is certainly



distinct enough from our other species ; it is most closely allied to *rufa*, as the abdomen has the somewhat shining surface and the black hairs which belong to that species, but it has also the basal segment distinctly longer, in fact as long as that of *germanica*, the markings not inclining to brown at their edges, and the clypeus marked as in that species, although its anterior angles are produced as in *rufa*. It differs, however, from either in having the scape of the antennæ flavous in front ; this last character allies it to the tree wasps, *syvestris* and *norvegica*, but the absence of the extended cheek between the eye and the mandible separates it at once from either of these. I have oftened wondered if these females could be a cross between *syvestris* and *rufa*, but if they were I think the cheek would probably be intermediate in length between the two, whereas, in no case have I found it longer than in normal *rufa*. If entomologists in the districts from which *arborea* has been recorded would carefully search for workers with short cheeks and yellow fronted scapes, this species might become better understood, at present it remains more or less a mystery ; the female is so like the other species that it might easily be passed over, and the worker no doubt is similar to it except in size.—E. SAUNDERS, St. Ann's, Woking].

*Early dates for Hymenoptera.*—About Woking several *Hymenoptera* have put in, as far as I know, unprecedentedly early appearances this year. *Megachile circumcincta* ♂ was taken as early as April 27th ; *Megachile Willughbiella* ♂ occurred on May 3rd ; *Pompilus gibbus* May 3rd ; *Formica rufa*, ♂ and ♀, the latter winged, in some numbers May 4th. These for this country are, I believe, quite phenomenal dates ; nearly all these species would naturally appear about June.—EDWARD SAUNDERS, St. Ann's, Woking : May 14th, 1893.

*Lecanium robiniarum*, Doug.—Recently, Mr. C. H. Tyler Townsend sent from Las Cruces, New Mexico, several scales of a *Lecanium*, which were doing much injury to *Robinia pseudacacia* there ; and these proved to be quite identical with *L. robiniarum*, described from specimens from Hungary (cf. Ent. Mo. Mag., i, n. s., p. 318), where also they do much damage to the *Robinia*. This tree being a native of the United States, the *Coccid* in New Mexico may be considered as in its native land, and it has, doubtless, been transported with the tree to Hungary, where it appears to flourish.

Mr. Newstead having made examples from each country the subjects of comparative examination, finds that the original description may be amended by adding "Legs long, slender ; tibiæ and tarsi of nearly equal length ; trochanter with a long hair ; digitules of the tarsi slender, of the claws stronger and dilated at the base. Derma with a very fine reticulation and numerous clear cellular spaces ; the reticulation, however, is very easily obliterated in caustic potash, and disappears in some places entirely after mounting in Canada balsam."—J. W. DOUGLAS, Lewisham : June 8th, 1893.

*Icerya ægyptiaca*, Doug., in India.—A number of specimens of this destructive *Coccid* were collected by Miss Tomlin near Madras during December, 1892, and were recently forwarded to me, with several other species, for investigation. Knowing how very destructive the species has been to orange trees in Alexandria, I forwarded

specimens to Mr. Cotes, Calcutta, and some parasites which hatched from them during transit to Professor Riley, of Washington. The latter has kindly replied:—"The fact of the occurrence of *Icerya aegyptiaca* in India is very interesting and important, and the parasites which Miss Tomlin sent were examined with bated breath. Most unfortunately, however, instead of being primary parasites they are secondary, and the whole series belongs to an apparently undescribed species of the genus *Tetrastichus*, all of the species of which are hyper-parasites, so far as I know." I cannot give the name of the food-plant, but hope Mr. Cotes will be able to make this out from the specimens sent. Miss Tomlin says the species is very common, but local; therefore, every care should be exercised on the part of the authorities to prevent its spread.—R. NEWSTEAD, Chester: May, 1893.

*Cicada (Cicadetta) montana* in the New Forest.—The dry, hot weather of the last two seasons appears to have been favourable to the above insect (commonly known as *Cicada hamatodes*), of which I have recently taken two specimens, and seen a few others which I failed to net. I have also obtained ten more from a local collector, but these were taken last year. I have been constantly collecting about the Forest during the past nine or ten years, but have never met with the insect before. It flies among the common brake (*Pteris aquilina*), but has a habit of dropping down suddenly, so unless you keep your eye on the exact spot they are difficult to catch.—F. C. ADAMS, Fern Cottage, Lyndhurst: June 10th, 1893.

*The prevention of mould in collections.*—As I fancy the climate here is quite as damp as that of New Zealand, I venture to answer Mr. Maskell's query with regard to prevention of mould, although I have no experience of *Coccids*, except as a blight on tea. I first clean the insects with a camel hair brush, and then apply benzine; this is the only thing I have found of any use at all. A fresh application of benzine is necessary every two months or so. Further, during damp weather I keep an oil stove alight underneath the stand my insect boxes are on. For show cases coral lime is very effective, but it requires renewing as soon as it has crumbled to powder. I have used benzine for *Lepidoptera*, *Coleoptera*, *Hemiptera*, also for leaf and stick insects.—P. E. RADLEY, Marguerita, Maturatta, Ceylon: April 24th, 1893.

*The Hope Professorship.*—Mr. E. B. Poulton, M.A., F.R.S., has been appointed to this Chair to fill the vacancy caused by the death of Professor Westwood.—EDS.

## Reviews.

JAHRESBERICHT DES WIENER ENTOMOLOGISCHEN VEREINES, iii, 1892 (1893). Vienna: published by the Society; London: Williams and Norgate.

In our Vol. for 1891, p. 107, we alluded to the establishment of an Entomological Society in Vienna, and noticed its first yearly Report. The Society is making good progress; there are now 65 Members, and the Report for 1892 extends to 70 pages with a coloured plate, as against 31 pages in 1891. As before, the contents

chiefly concern *Lepidoptera*; there is what amounts to a Monograph of the native species of *Parnassius* by Rebel and Rogenhofer, with full details on localities and local variation; the plate illustrating it is excellent.

**THE BUD MOTH:** by MARK VERNON SLINGERLAND; being Bulletin 50 of the Cornell University Experiment Station. Published by the University, Ithaca, N. Y. 1893.

We notice this paper, partly because it is by an author whose name we do not seem to have previously come across, and partly in order to show how exhaustively any subject connected with Economic Entomology is worked out in the United States. The structure, life-history, ravages, and means of prevention occupy 29 closely printed 8vo pages, with many cuts in the text. We may as well add that the "Bud Moth" is no other than *Hedya ocellana* of English Lists, that it was first noticed in America about 1841, and that it has since become a most formidable enemy of the apple crop.

**BUTTERFLIES OF THE RIVIERA,** Second Edition: by FRANK BROMILOW, F.E.S. 8vo, pp. 133. Nice: The Galignani Library. 1893.

We noticed the 1st Edition in our issue for October, 1892, and said that it seemed likely to supply a want. That it has done so is proved by the necessity for a second edition following so soon on the first. The plan is the same in both, but the more recent edition contains additional species, and information as to localities, food-plants, &c. The author is an enthusiastic young entomologist.

**THE FIELD NATURALIST'S HANDBOOK,** Fifth Edition: by the late Rev. J. G. WOOD and the Rev. THEODORE WOOD. London: Cassell and Co. pp. 167. 1893.

This is a Calendar, and concerns British *Lepidoptera*, Plants and Birds' Eggs. That it has reached a fifth edition proves there is a demand for Calendars, and beginners living in the country will no doubt find it useful. It is perfect in its getting up, and the "Introduction" and remarks are an improvement on those occurring in the earlier editions. Nature laughs at Calendars! Let any one compare the results for April, 1893, with the averaged statistics in a Calendar!

## Obituary.

*Francis Polkinghorne Pascoe, F.L.S., &c.*—With great regret we announce the death of this well-known entomologist on June 20th, aged 79. He had been in bad health for some time. A more extended notice will appear in our next issue.

*John Charles Bowring, F.L.S.,* died at his residence, Forest Farm, Windsor Forest, on June 20th, aged 72. He was the eldest son of Sir John Bowring, whose name was at one time prominent in connection with our diplomatic relations with China, and was, himself, for some time partner in the great Chinese commercial firm of Jardine, Matheson and Co. He was an ardent entomologist, and formed a large collection of *Coleoptera*, but, from his retiring habits, he was little known outside the circle of his intimate acquaintances.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *May 15th*, 1893. — Mr. R. C. BRADLEY, Vice-President, in the Chair.

Mr. G. W. Wynn showed *Acherontia Atropos* from Cannock Chase. Mr. A. H. Martineau said that at Solihull a specimen of *Sphinx ligustri* had entered a hive and been killed by the bees; the bees then, unable to remove so large a body, had covered it up with wax. The Secretary announced the receipt from Mr. John Willis, of Edgbaston, of a handsome present of books, about 40 volumes; and a cordial vote of thanks was passed to Mr. Willis for his kind gift.

WHITSUNTIDE EXCURSION.—An excursion was made to the Cotswolds at Whitsuntide, when, under the kind guidance of Mr. Frank Stephens, of Ebley, a pleasant three days were spent in the neighbourhood of Stroud by the few members who attended. *Lycæna Adonis* and *Ino Geryon* were common amongst the *Lepidoptera*, and a number of interesting *Diptera* and *Hymenoptera* were taken. The most noteworthy capture was, perhaps, that of *Cheilosia chrysocoma*, one of which was taken near Painswick.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *May 11th*, 1893. — CHAS. G. BARRETT, Esq., Vice-President, in the Chair.

Mr. R. South exhibited a series of *Diurnea fagella*, Fb., from Buckinghamshire, the light and dark forms being about equal in number. Mr. South said that the trees in the wood in which they were taken were darker on their western side than on their eastern, and at the time he collected these specimens the wind was in the east, and most of the moths were at rest on the western side of the trees, the dark insects being inconspicuous, and he thought that if this often happened when this species was on the wing, it would, by natural selection, tend to produce a darker race. Mr. Barrett, in referring to the breeding of *Bombyx castrensis*, L., in captivity, said the larvæ should be well wetted at times and exposed when possible to the sun, and he thought the absence of the latter in some years might account for the uncertain appearance of this species. Mr. Turner said that he had bred *B. castrensis* very successfully on rose leaves dipped in salt water, the discussion being continued by Messrs. Tutt, Frohawk and South. Mr. Adye exhibited a long series each of *Moma Orion*, Esp., *Eurymene dolobraria*, L., *Amphidasis betularia*, L., *Hylophila prasinana*, L., &c., the majority having been bred in March and April indoors, from larvæ taken in the New Forest last autumn. Mr. Tutt said that on May 6th *Lycæna bellargus*, Rott., was on the wing in Kent, also *Nemeophila plantaginis*, L., *Euclidia glyphica*, L., &c., whilst pupæ and larvæ of *Vanessa urtica*, L., were reported for the same date. Mr. Jager mentioned that *Cidaria truncata*, Hufn., was now emerging, and Mr. South said he had bred *Coccyx strobilana*, Hb., from the spruce fir in Buckinghamshire.—F. W. HAWES and H. WILLIAMS, *Hon. Secs.*

*May 25th*, 1893.—J. JENNER WHITE, Esq., F.L.S., President, in the Chair.

Mr. Adkin exhibited a bred series of *Cidaria suffumata*, Hb., from Forres, with bred series from Dover and Box Hill for comparison; also a bred series of *Lobophora carpinata*, Bork. (*lobulata*, Hb.), from Rannoch, including one extreme banded form, with southern series for comparison. Mr. Gerrard, a specimen of

*lyrichtus malva*, L. (*alceolus*, Hb.), var. *fritillum*, W. V., from Epping. Mr. C. J. Barrett, a box containing more than twenty species of the *Psychidae* from the continent of Europe, and especially desired to gain further information with regard to these little known and obscure insects. Mr. Weir remarked that all the species seemed excessively local, and gave his experience with *P. villosella*, Och., stating that the female did not leave the case, that the eggs were laid and hatched within this shelter, and that most likely the first meal of the young larvæ was the body of their mother. Mr. West, of Streatham, on behalf of Mr. Trenerry, a male and female of *Pieris Daplidice*, L., captured by a boy at Plymouth, also a specimen of *Smerinthus tilia*, L., in which the rosy tint was very strongly developed, making a very beautiful var. Mr. Turner, a long series of *Hybernia leucophaea*, Schiff., from varieties with but few markings on a light ground, to forms which were very dark with the transverse lines obliterated, selected from various localities near South London; a specimen of *Panolis piniperda*, Panz., from Westerham, in which green was the prevailing colour; also hibernated specimens of *Pterophorus monodactylus*, L., taken on February 18th of this year. Mr. Warne, a nodule of kauri gum from New Zealand, enclosing a large longicorn beetle. Mr. Weir, a species of *Hippoboscidae* taken from an exhausted house-martin (*Chelidon urbica*, L.), most likely *Stenopteryx hirundinis*; also a mass of eggs and young larvæ from the wild rose (*Rosa canina*), which appeared to be those of *Hemerophila abruptaria*, Thnb.; he earnestly requested members to make notes of all unusual occurrences during the present phenomenal season, and report to the Society the results of their observations and experiences. Mr. Adkin remarked that a considerable number of species had appeared in his breeding cages, which had been two years or more in pupa. Mr. Perks showed a large specimen of a *Polyporus*, full of Coleopterous larvæ, taken at the Society's field meeting at Horsley. Mr. Turner then read the Report of the Society's field meeting at Horsley, on May 13th, which had been so successful and enjoyable.—H. J. TURNER, *Acting Secretary*.

June 8th, 1893.—The President in the Chair.

Mr. F. W. Frohawk exhibited a variety of *Melitæa Aurinia*, Rott., a most remarkable form, especially on the under-side, the normal orange-tawny colouring being replaced by fulvous-brown, and the markings of the outer half of the secondaries being almost entirely missing, also a somewhat similar aberration of the same species on behalf of Mr. Carpenter. Mr. H. A. Auld exhibited a specimen of *Spilosoma urticae*, Esp., which was deficient in the usual row of black spots down the centre of the body; also a bred series of *Phibalapteryx vitalbata*, Hb. Mr. R. Adkin showed a series of *Asteroscopus nubeculosa*, Esp., from Rannoch, bred in 1893, two being from larvæ fed up in 1890, and the remainder in 1891; he said it was not uncommon for this species to remain two years in the pupa. Mr. Weir referred to the view held by some, that certain species resisted any forcing when pupæ, and instanced the second brood of *Pieris napi*, L., in this respect; Mr. Barrett stating it was of the utmost importance that a species like *A. nubeculosa* should have the power of delaying emergence should the weather be too unfavourable. Mr. Weir exhibited a specimen of *Aporia cratagi*, L., one of four taken by him in the early part of June, 1889, at Keymer, Sussex, it being then abundant. In 1840, in the same locality he saw but one, and in subsequent years none at all.

This specimen he generously placed in the Society's collection. Mr. Weir also said that large numbers of this species, bred from continental pupæ, had been liberated in the neighbourhood of Windsor. Mr. Frohawk recorded the occurrence of *Limenitis Sibylla*, L., so early as May 22nd.—F. W. HAWES and H. WILLIAMS, *Hon. Secretaries*.

ENTOMOLOGICAL SOCIETY OF LONDON: *June 7th*, 1893.—HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

Mr. George Willis Kirkaldy, of St. Abbs, Worples Road, Wimbledon, S.W., was elected a Fellow of the Society.

Mr. W. C. Boyd exhibited varieties of *Fidonia piniaria* and *Thecla rubi*, taken at Bournemouth on May 20th, 1893.

Mr. C. O. Waterhouse exhibited two galls, one on the stem and the other on the leaf of an oak from Durango, Mexico, respecting which he asked for information; the one on the stem proved to be the gall of *Cynips guatemalensis*: the other, which resembled a sponge, was unknown.

Mr. A. Cowper Field exhibited varieties of *Smerinthus tilia*, bred between 1890 and 1893, under varying conditions of temperature, those which had been exposed to a lower temperature being much darker than those which had been exposed to a higher. Mr. Merrifield made some observations on the subject, and remarked that, as far as his experience went, no hard and fast rule could be laid down with regard to the production of the lighter or darker colourings, as a high temperature sometimes produced dark forms.

Mr. W. M. Christy exhibited a series of *Zygæna trifolii*, including very many yellow forms, all, with one exception, taken at one spot during the latter half of May, 1893, and belonging to one colony. Some of the specimens were more or less incomplete, both in structure and colour, and Mr. Barrett stated as his opinion that this was due to their having been forced by the unusually fine weather. Lord Walsingham, Mr. Merrifield, and others took part in the discussion which followed.

Canon Fowler exhibited cocoons and specimens of *Coniatus suavis*, var. *chrysocolora*, Luc., taken by Lord Walsingham in great abundance on the flower-shoots of tamarisk in the West of Italy.

Mr. Chitty exhibited black varieties of the following *Coleoptera* from the slopes of Ben Cruachan, N.B.:—*Carabus violaceus* and *arvensis*, *Pterostichus versicolor*, *Phyllopertha horticola*, and *Telephorus figuratus*, and stated that the latter seemed a permanent race, as it occurred both in 1892 and 1893.

The President remarked on the great abundance of *Coleophora laricella* in Gloucestershire, and stated that they were committing great ravages among young larches. Lord Walsingham stated that he had seen young larches at Carlsbad completely bleached by this moth.

It was suggested by several Fellows of the Society that care should be taken to observe the occurrence of second broods of insects during the year.

Mons. Wailly exhibited a collection of *Lepidoptera*, *Coleoptera*, and *Orthoptera* from New Zealand. A discussion followed, in which Lord Walsingham, Dr. Sharp, Mr. McLachlan, Mr. Durrant, and others took part.

Mons. Wailly further exhibited cocoons of various silk-producing *Lepidoptera*, and stated that the larva of *Attacus Pernyi*, whose food-plant is oak, had been reared in Trinidad on *Terminalia latifolia*.—W. W. FOWLER, *Hon. Secretary*.

AG.







## THE LATE MR. STANTON'S COLLECTIONS, &amp;c.

BY THE RIGHT HON. LORD WALSHINGHAM, M.A., F.R.S., &amp;c.

Mrs. Stainton having, as already announced (*ante* p. 111), generously presented to the Trustees of the British Museum the whole of her late husband's collections of *Lepidoptera*, together with his entomological correspondence and unpublished drawings illustrating the larvæ and life-histories of *Micro-Lepidoptera*, it may be interesting to his many friends and correspondents among entomologists to know that these are now accessible to students at the Natural History Museum.

The collections are contained in seven cabinets and numerous boxes, the contents of the latter being for the most part duplicates or specimens not coming within the range of his special studies. These boxes have been carefully examined, and a selection has been made of such of their contents as may, at some future time, be usefully incorporated with the existing National series; these and others selected from among miscellaneous and unarranged specimens have been placed for the time in the empty drawers of a large cabinet containing a great number of interesting European and exotic *Tineidæ*, many of which have been the subjects of Mr. Stainton's published contributions to science. There was already in this cabinet much unnamed and unarranged material received from various correspondents, among whom may be mentioned Belfrage, who collected in Texas about 1870; Bates, whose expedition to the Amazons yielded rich results; Atkinson, who, in the neighbourhood of Calcutta, carefully observed the life-histories of many species; Petersen, from Colombia; Trimen, from the neighbourhood of Cape Town; Eaton, from Portugal and the south of France; Hudson, from New Zealand; and many others. There are also many species received from Brackenridge Clemens at about the time when Mr. Stainton edited the papers of that author in his volume on the "*Tineina* of North America;" with a considerable number of named specimens from Chambers, Boll, and others, which should be useful in the identification of insufficiently described and never fully recognised North American *Tineidæ*. The actual types described by Mr. Stainton in his Indian, Australian and African papers in the Transactions of the Entomological Society are also found in good condition.

It has been determined, after making an inventory, to keep the contents of this cabinet for the present undisturbed, although it is hoped that they may be incorporated from time to time in the future

together with other material: for instance, my own collection (including that of the late Professor Zeller) left by my will to the Museum; the Grote collection, still untouched as regards the *Tortricidæ* and *Tineidæ*; and the Frey collection, lately purchased by the Trustees.

It seems important to maintain intact the whole British series of *Macro* and *Micro-Lepidoptera*, seeing that these form a counterpart to his well-known Manual, still in constant use.

The European collection of *Tineidæ* contains a number of types as well as many series of specimens received direct from the authors by whom the species were first described, and which are, therefore, extremely valuable as co-types, or at least as having been compared with the originals. This collection far surpasses anything of the kind now in the possession of the Trustees. One of the conditions on which the collection is presented is that this, as well as the British series, should remain undisturbed.

To sum up shortly, the conditions which will attach to these collections, as resulting from a consultation with Messrs. Douglas and McLachlan, who represented Mrs. Stainton, are as follows:—First, the whole British series will be kept intact; secondly, the European *Tineidæ* will also be kept untouched. These will be immediately accessible to students in the Insect Room at the Natural History Museum. It is the Donor's wish that these collections shall be distinctly labelled and known as "the Stainton Collection," and kept as a memorial of her late husband's name and work. Thirdly, the exotic *Micro-Lepidoptera* with some others will remain for the present in a cabinet accessible only to those who are specially interested in studying them. They may be gradually worked out and incorporated from time to time, but in all cases where a specimen is removed from any cabinet or box it will be labelled as from the Stainton Collection, the name (if any) under which he placed it being also recorded on the label. Fourthly, the miscellaneous contents of one cabinet and several boxes may be at once incorporated, the duplicates being available for gift or exchange in the same way as other duplicates are dealt with in the Natural History Department.

It is intended that a catalogue shall be made of the arranged portions of the collection, stating the names and numbers of the specimens of each species represented according to their present sequence, and that this shall also be available for the use of students.

*DICHRORAMPHA ALPESTRANA*, H.S., AN ADDITION TO THE  
BRITISH LIST.

BY A. THURNALL.

On the evening of June 22nd, 1892, I captured in Epping Forest a fine specimen of *Argyrotoxa Audouinana*; this being a species much wanted, I visited the spot again on the 26th, but after beating for some time, I gave it up in disgust, and turned my attention to the rough herbage growing in an open marshy spot, and was soon rewarded by the capture of a small *Dichrorampha*, which I at once saw was new to our list. In the course of half an hour I captured about a dozen, most of them worn, sitting upon the stems of *Juncus glomeratus* and *Aira cæspitosa*. From observations made at the time I felt sure that the larva would be found feeding on the roots of the "sneezewort" (*Achillea ptarmica*, Linn.), and accordingly paid a visit to the spot on March 11th last, soon after the present dry season had set in, and speedily found my surmise correct. The half-dozen larvæ dug up on that occasion were very snugly hidden away in neat little cocoons attached to the bark of the roots of the above-named plant, and may be very briefly described as—bone-white with light brown heads. They appeared to have been feeding *in* and *upon* the rather long underground suckers, often four or five inches below the surface, much in the same way as *Halonota trigeminana* larvæ feed on the roots of *Senecio*. They must have an exceedingly moist time of it, as the spot where they occur is over one's shoe tops in semi-liquid clay for months at a time! They changed to pupæ very early in May, and on the 7th a fine ♀ emerged.

I found, on paying a visit to the spot on June 4th, that the imagoes were well out. From their small size and dull colours they are very difficult to see, and I found the best plan was to search the stems of *Juncus* and *Aira*, which are generally to be found wherever the food-plant grows: they run up the stems to expand and dry their wings just as *D. alpinana* does on the stems of tansy. The plants must not be shaken when searching, as on the least alarm they dive down and are lost in the herbage. Doubtless the insect will turn up in many places where its food-plant occurs. I am indebted to Lord Walsingham (through Mr. E. Bankes) for the name.

The following is a brief description of the imago:—

Head and thorax dark fuscous. Basal half of anterior wings very dark brown, the apical half very thickly irrorated with dark orange scales, an angulated blue line leaves the costa beyond the middle, reaching to the dorsal margin, or very nearly so. Still nearer the apex is a short blue line, which has, as a sort of continuation

to it, three conspicuous black dots. On the middle of the dorsal margin appears an oblong blotch, intersected by a fuscous line, and pointing obliquely towards the apical region. This blotch is only conspicuous in fine specimens, and is decidedly paler in colour than the orange marked apical portion of the wing. Hind-wings uniformly dark fuscous.

A particularly "stumpy," square looking insect, its markings putting one more in mind of *Dichrorampha alpinana* than any other species of the genus.

144, Chobham Road,  
Stratford New Town, E. :  
June 19th, 1893.

NOTES CORRECTING THE SYNONYMY OF "*DICHRORAMPHA*"  
*SUBSEQUANA*, Hw., IN WHICH *DICHRORAMPHA ALPESTRANA*,  
H.-S., IS WRONGLY INCLUDED IN STAUDINGER AND WOCKE'S  
CATALOGUE.

BY THE RIGHT HON. LORD WALSINGHAM, M.A., LL.D., F.R.S.

Early last February Mr. Banks submitted to me some specimens of a *Dichrorampha* taken by Mr. Thurnall in Epping Forest, which differed from any recognised British species. I found them to agree well with Herrich-Schäffer's figure of *montanana* (subsequently described and referred to in the text as *Grapholitha alpestrana*, H.-S.), which appears to be a species of *Dichrorampha* not at present well known on the continent and unrepresented in the Zeller Collection, except by a single female wrongly placed in the series of *Lipoptycha plumbana*, Sc. The occurrence of this species here, and its addition to the British list, necessitates a careful revision of synonymy which presents exceptional difficulties.

The name *alpestrana* has been sunk as a synonym of *subsequana*, Hw., but the two species are not even congeneric, *subsequana* being a *Steganoptycha*, according to the generally accepted use of that genus. The reference to *subsequana* in Staudinger and Wocke's Catalogue includes in its synonymy no less than four *other* names, all of which may be rightly applied to good and distinct species. I shall here attempt to clear up the confusion that has arisen therefrom. For this purpose it will be necessary to refer to three numbers in the above-mentioned Catalogue, which are as follows:—

"1241—*ABIEGANA* Dup. IV. 83. 4. p. 409 (1842); *abiegana* Z. Stett. E. Z. 1849.  
244; HS. 128. IV. p. 281; Hein. 217; ? *pygmaeana* Froel. No. 217."

"1243—*MERCURIANA* Hb. 322; Froel. No. 170; HS. 326. IV. p. 272; Hein.  
218; *monticolana* Wlk. 224; Stt. Man. 2. 249."

"1284—SUBSEQUANA Hw. Lep. Br. p. 448 (*non* HS.); ? Steph. Ill. IV. 136; ? Wd. 1021; *monticolana* Dup. IV. 83. 3; Hein. 235; *montanana* Dup. IV. 83. 7; HS. 193; *alpestrana* HS. IV. p. 260; ? *plumbagana* Wlk. 107; ? Stt. Man. 2. 215."

#### STEGANOPTYCHA SUBSEQUANA, Hw.

*Tortrix subsequana*, Hw., Lp. Br., 448—9 (1812).

= *Grapholitha abiegana*, Dp., Hist. Nat. Lp. Fr., Sppl., IV, 409—10, pl. lxxxiii, 4 (1842).

= *Asthenia pygmaeana*, Wlk., Br. Tortr., 215—6 (1859); Stn., Man., II, 247 (1859).

Warren, Ent. Mo. Mag., XXIV, 6—8 (1887), having examined Haworth's original specimens of *subsequana* in the British Museum, found them to be identical with *abiegana*, Dp., and came to the conclusion that the *pygmaeana* of Wlk. and Stn. (*nec* Hb.), was the same species. The corrected synonymy of this species is therefore as follows:—

1241—SUBSEQUANA, Hw., Lp. Br., 448—9 (1812); Stgr. & Wk. (*partim*) Cat. Lp. Eur., II, No. 1284 (1871); Wrn., Ent. Mo. Mag., XXIV, 6—8 (1887); Stn., Ent. Mo. Mag., XXIV, 8 (1887).

= *abiegana*, Dp., Hist. Nat. Lp. Fr., Sppl., IV, 409—10, pl. lxxxiii, 4 (1842); H.-S., Schm. Eur., IV, pl. xviii, 128 (1849); Stgr. & Wk., Cat. Lp. Eur., II, No. 1241 (1871); *abiegnana*, Z., Stett. Ent. Zeit., 1849, 244; H.-S., Schm. Eur., IV, 281 (1849); Hein., Schm. Deutsch. Tortr., 217—8 (1863).

= *pygmaeana*, Wlk., Br. Tortr., 215—6 (1859); Stn., Man., II, 247 (1859); Brt., Ent. Mo. Mag., X, 245 (1874).

? = *pygmaeana*, Fröl., Enum. Tortr. Würt., 90—1, No. 217 (1828).

#### STEGANOPTYCHA MERCURIANA, Fröl.

*Tortrix mercuriana*, Fröl., Enum. Tortr. Würt., 73—4, No. 170 (1828); Hb., Tortr., 322 (1831).

= *Sericoris* (*Eudemis*) *subsequana*, Stph., Ill. Br. Ent., Haust. IV, 136 (1834); Wd., Ind. Ent., 1021 (1839).

= *Coccyx monticolana*, Dp., Hist. Nat. Lp. Fr., Sppl., IV, 408—9, pl. lxxxiii, 3 (1842).

= *Pamplusia alticolana*, Stph., List. Br. An. B. M., X, Lp. 52, 100 (1852).

Stephens, List Br. An. B. M., X, Lp. 52 (1852), referred his *Sericoris* ? *subsequana*, as also Wood's figure 1021, to "*monticola*, Mn." Wood's figure certainly represents *monticolana* (Mn. MS.), Dp., and Stephens was probably correct in considering his *subsequana* to be the same species.

*Coccyx monticolana*, Dp., was erroneously considered by Heine-mann, Schm. Deutsch. Tortr., 235 (1863), as identical with *alpestrana*, H.-S., and Staudinger and Wocke (Cat. Lp. Eur., No. 1284), thinking

*alpestrana* a synonym of *subsequana*, Hw., referred *monticolana*, Dp., to that species.

The original drawings (on vellum) of Godart and Duponchel's work are in the Merton Library; they are as beautiful and accurate as the published plates are bad, indeed, it would be no exaggeration to say that better drawings have never been made, and I doubt if they have ever been equalled. The figure of *monticolana*, Dp., represents undoubtedly the species known as *mercuriana*, Hb., and is indeed an excellent drawing of it. Hence it follows that *monticolana*, instead of being referred to *subsequana*, must sink as a synonym of *mercuriana*.

Stainton was acquainted with the errors that had been made with regard to this insect. In the account of his second visit to the Engadine (Ent. Ann., 1871, 6), in recording the extreme abundance of *Pamplusia monticolana*, Dp., he adds the following note:—

"In Staudinger and Wocke's Catalogue, *Alpestrana*, Herrich-Schäffer, is given as a synonym for the insect; but Herrich-Schäffer's insect is not the species I mean, which is quite recognizably figured by Duponchel in his fourth supplementary volume, pl. 83, f. 3, under the name of *Coccyx monticolana*, and has no affinities with the unicolorous *Dichrorampha*, to which Herrich-Schäffer's *Alpestrana* seems nearly related."

Stainton's remark is certainly justified, for omitting the evidence now produced from an examination of the original drawing, Duponchel's figure, though not good, "is quite recognizably figured," and certainly does not look at all like a *Dichrorampha*.

Barrett, Ent. Mo. Mag., IX, 26, 7 (1872), under the head *Dichrorampha plumbagana*, Tr., calls attention to Dr. Wocke's errors in Staudinger's Catalogue, especially in his treatment of *plumbagana*, Wilk., but himself makes the mistake, which he repeats in a subsequent paper, Ent. Mo. Mag., X, pp. 245, 247 (1874), of confounding *subsequana*, Hw., with *pygmæana*, Hb., failing to recognise that *pygmæana*, Hb., is not the *pygmæana* of Wilkinson, although he rightly separates "*monticolana*, Mn.," from these species.

Snellen, Vlind. v. Ned. Micr., 404 (1882), considered *monticolana*, Dp., synonymous with *herbosana*, Brt., but this is really *tanacetii*, Stn.

The corrected synonymy of this species should be as follows:—

1243—*MERCURIANA*, Fröl., Enum. Tortr. Würt., 73—4, No. 170 (1828): Samml., Eur. Schm. (text) Tortr., 11 (1831); Hb. (Gey.), Tortr., pl. li, 322 (1831); H.-S., Schm. Eur., IV, 272—3, pl. xlvii, 326 (1849); Ld. Wien., Ent. Mts., III, 342 (1859); Hein., Schm. Deutsch. Tortr., 218—9 (1863); Stgr. & Wk., Cat. Lp. Eur., II, No. 1243 (1871).

= *subsequana*, Steph., Ill. Br. Ent., Haust. IV, 136 (1834); Wd., Ind. Ent., 1021 (1839); Steph., List. Br. An. B. M., X, Lp. 52 (1852).

= *monticolana*, Dp., Hist. Nat. Lp. Fr., Sppl., IV, 408—9, pl. lxxxiii, 3 (1842); Wilk., Br. Tortr., 224 (1859); Stn., Man., II, 249 (1859); Dbld., Syn. List (2 edn.), 24 (1866); Stn., Ent. Ann., 1871, 6; Brt., Ent. Mo. Mag., X, 247 (1874).

= *alpicolana*, Stph., List. Br. An. B. M., X, Lp. 52, 100 (1852).

= *subsequana* (*partim*), Stgr. & Wk., Cat. Lp. Eur., II, No. 1284 (1871).

NOTE.—*mercuriana* has been wrongly attributed to Hübner as its author. It was figured in Geyer's continuation of Hübner's work, and the accompanying text, dated "September, 1830," is by Dr. Frölich. On p. 11, after the Latin description, we find the following reference—"Fröel. En., p. 73, n. 170," which proves that the text was published after Frölich's "Enumeratio." Although the title accompanying the text is dated 1830, it seems that this and the corresponding plates were not published until APRIL, 1831, for in the copy of Hübner in the Merton Library is the following note, evidently written at the time:—

"en Avril, 1831, reçu une partie de texte, et 4 planches nouvelles qui sont les 49, 50, 51 et 52e."

And below this is written with a different pen—

"du 20 Mars, 1834, reçu la pl. 53."

Jacob Hübner died on the 13th September, 1826.

#### DICHRORAMPHA PLUMBAGANA, Tr.

In Staudinger and Wocke's Catalogue, under the name *distinctana*, Hein. (No. 1282), and again under *subsequana*, Hw., we find the two following references:—"? *plumbagana* Wlk. 107; ? Stt. Man. 2. 215." Why they are inserted in either of these places is not apparent, unless having made *tanacetii*, Stn. (which is a good species) a synonym of *plumbagana*, it was necessary to locate *plumbagana*, Wilk. and Stn., elsewhere, and being unable to find a satisfactory place, they were referred with a "?" to the species which *precedes* and the species which *follows plumbagana* in the Catalogue!

Both Wilkinson and Stainton were rightly acquainted with *plumbagana*, Tr., and to that species these two references must be removed.

#### DICHRORAMPHA MONTANANA, Dp.

We have now eliminated from the *subsequana* of Staudinger's Catalogue all but three references, which constitute two good species. *Ephippiphora montanana*, Dp., Hist. Nat. Lp. Fr., Sppl., IV, 413, pl. lxxxiii, 7 (1842). *Grapholitha alpestrana*, H.-S., Schm. Eur., IV, 260 (1849).

= *montanana*, H.-S., pl. xxvii, 193.

The only explanation that appears possible for regarding *alpes-*

*trana*, H.-S., as synonymous with *montanana*, Dp., is that Herrich-Schäffer figures the species under this name, which, however, he corrects in the text with the explanatory note, "*montanana*, F. R. olim."

It is quite incomprehensible why *montanana*, Dp., has been considered to be the same as *monticolana*, Dp. It is probably an instance of the confusion too often arising from too great similarity of specific names given by the same author, especially when described at the same time and figured on the same plate; the published figures even are entirely dissimilar, and neither *montanana*, Dp., nor *monticolana*, Dp., resembles the figure of *alpestrana*, H.-S. (= *montanana*, F. R. MS.). The synonymy of these two species will, therefore, be as follows:—

1284—*MONTANANA*, Dp., Hist. Nat. Lp. Fr., Sppl., IV, 413, pl. lxxxiii, 7 (1842).

= *subsequana*, Stgr. & Wk. (*partim*), Cat. Lp. Eur., II, No. 1284 (1871).

1284 (bis).—*ALPESTRANA*, H.-S., Schm. Eur., IV, 260 (1849).

= *montanana*, H.-S., Schm. Eur., IV, pl. xxvii, 193 (1849).

= *subsequana*, Stgr. & Wk. (*partim*), Cat. Lp. Eur., II, No. 1284 (1871).

? = *monticolana*, Hein., Schm. Deutsch. Tortr., 235 (1863).

The following is Herrich-Schäffer's description:—" *alpestrana*, F. R. - *montanana*, F. R., olim. - Ent. Zeit, 1843, p. 143. - Sppl., 193. - 6, L.

"*Lutescenti-grisea, lineis undique transversis undulatis pallidis, macula marginis interioris pallida, obsolete tripartita.* Wie die kleinsten exemplare von *Blepharana* mit etwas schmalern Flügeln. Die hellgelbe, in Querlinien gehäufte Beschuppung verliert sich gegen die Wurzel kaum merklich und lässt die Farbe der Vorderflügel graugelb erscheinen, viel lichter als bei *Cacaleana* und der verfliegensten Exemplaren von *Blepharana*. Von beiden unterscheidet sie sich ausserdem durch die deutlichen lichten Querwellenlinien, welche bis zur Wurzel reichen und den, wenn auch nicht scharf begrenzten, doch deutlichen, lichten, dreitheiligen Innenrandsfleck. Die Bleilinen selten sehr auffallend, ganz wie bei *Blepharana* gestellt. Kopf und Palpen lehmgelb, letztere an den Rändern braun.

"Steirische Alpen, Juni; bei Regensburg vom Juni bis August."

The addition to our British list recorded by Mr. Thurnall should probably be placed after *alpinana* and *Petiverella*, with which it agrees in possessing a costal fold in the male, which constitutes it a true *Dichrorampha*, in contradistinction to the genus *Lipoptycha*, as separated by Lederer.

At some future time I shall have occasion to refer to other questions of synonymy as affecting the species included in the genera *Dichrorampha* and *Lipoptycha*.

Merton Hall, Thetford:  
July, 1893.



VARIATION IN *ZYGÆNA TRIFOLII*.

BY C. G. BARRETT, F.E.S.

By an accident, a slight error appeared in the report of the Entomological Society's meeting of the 7th ulto. It is there stated that I attributed the ill-developed and incomplete condition of certain specimens of *Zygæna trifolii* "to the unusually hot weather." This was not by any means what I intended to say. Consequently, it is necessary to make this correction, because the exhibition itself was one of extraordinary interest, and deserving of some further notice, more especially as Mr. W. M. Christy brought up the long and remarkable series of *Z. trifolii*, then shown, at my request.

It appears that in a wooded locality near his residence at Emsworth, and on the Sussex side of the town, this insect has been extremely rare, hardly more than a casual specimen having been taken in previous years, but that this year it appeared there in great profusion, some being normal 5-spotted specimens, others having the spots unusually small, others again with coalescing spots united in pairs or in blotches, some with the whole run into one long blotch; others, again, were incomplete, as though portions of fore- and hind-wings had been cut off in curves, which, however, were quite uniform in each specimen, and also were exactly as the insects emerged from the pupa, one or two being even almost apterous. But perhaps the most interesting range of variations of all, was a series of yellow specimens—hind-wings and spots bright yellow—in some numbers, and showing the variations of the normal red forms in the completeness of separate spots, in their fusion in pairs, in blotches, and even in one instance showing the complete longitudinal stripe produced by coalescence of all the spots. This yellow form in *Z. trifolii* is so rare in this country as to have been previously almost unknown, and it appeared worthy of notice that this striking aberration in colour should have appeared in the same large emergence of a rather isolated brood of the insect, as that which contained the incomplete specimens, thus clearly showing that some abnormal condition had been at work.

The reference made to the heat of the present season was that it was merely a probable inducement to larvæ to feed up, which might otherwise have again hibernated.

In this connection it may be well to mention that Mr. W. H. B. Fletcher, in the course of his singular and successful experiments in hybridizing and continuing the reproduction of hybrids in this genus, has discovered the remarkable fact that larvæ not unfrequently decline to feed up in the spring after the first hibernation, but, eating very

little, settle down again and pass another winter in the same condition. This doubtless explains the sudden appearance of multitudes in a specially favourable season.

39, Linden Grove, Nunhead, S.E.:

July 11th, 1893.

# DESCRIPTION OF A NEW SPECIES OF *ARCTIIDÆ* BELONGING TO THE GENUS *ANAXITA*, WALK.

BY JUAN J. RODRIGUEZ.

## *ANAXITA* DRUCEI, *n. sp.*

♂. Primaries similar to those of *A. sannionis*, Butler, but more brick-red in colour, the streaks and bands crossing the wing greyer and rather wider, the second band not joined to the first and broken into two towards the inner margin; the ground colour pure white instead of pale yellow, as in *A. sannionis*; and the streak in the cell and the spot below it are larger. Under-side paler, similar to the upper-side, but with the base and two spots on the costal margin black, the first spot small, the second large and extending partly across the wing. Secondaries black; on the under-side a streak in the cell and a spot beyond it reddish-orange, the fringe black. Head, collar, and tegulæ pure white, the tegulæ edged with black; antennæ black; abdomen bright red. Expanse, 2½ inches.

*Hab.*: GUATEMALA (Mus. Rodriguez).

This fine insect may be at once distinguished from either of the described species of the genus by the black hind-wings, and also by many minor differences pointed out in the description. It is more closely allied to *A. sannionis*, from Ecuador and Peru, than to the Mexican *A. decorata*, Walker.

# DESCRIPTION OF A NEW SPECIES OF SOUTH AFRICAN *HOMOPTERA*.

BY W. L. DISTANT, F.E.S.

## *LOCRI* CONCINNA, *n. sp.*

Head, anterior half of pronotum, scutellum, basal third of tegmina, abdomen above, body beneath, and legs, sanguineous; posterior half of pronotum and central area of the tegmina pale stramineous; two central spots to head, a transverse fascia on anterior area of pronotum, apical area—very irregularly defined—of tegmina, mesosternum, fascia to abdomen, and apices of the tarsal joints black; apical margin of the tegmina ochraceous, and apical black area irrorated with greyish-white; wings pale hyaline, their apical margins fuscous. Long., includ. tegm., 10 mm.

*Hab.*: S. Africa; Otiembora (Eriksson); S. Afr. Mus., and Coll. Dist.

This prettily marked species is very distinct from any other member of the genus, by its varied coloration and markings.

Purley, Surrey: July, 1893.

ON SOME NEW INDIAN *HISTERIDÆ* AND A NOTE ON *HISTER RUGISTRIUS*, LEW.

BY G. LEWIS, F.L.S.

The genus *Niponius* was founded in 1885 on four species from Japan and published in the Trans. Ent. Soc. Lond., iii, p. 333. I then surmised that it was only reasonable to believe that other species would eventually be discovered in the Oriental region, and now two have been brought home by Dr. H. E. Andrewes from India, where they were captured by Mr. T. R. D. Bell in the Province of Kanara on the west coast. Dr. Andrewes says that "Kanara is a large district covered with dense jungle, some of it evergreen, with good high forest in many parts. A portion of it is on the edge of the Deccan plain, 2000 feet above the sea," and adds that his friend, Mr. Bell, "has collected principally at Yellarpur, and generally along the northern border of the district." This is just the kind of country for the most interesting entomophagous beetles, and it can only be regarded as accidental that some of the large collections made recently in the east by Signor Fea, Mr. Doherty, and others have not contained species of this genus, as these travellers have passed over places in which the more important physical conditions are essentially the same. The first of the present species is remarkable in having no elytral striæ, because the four Japanese species had striæ so similar, that the striæ were found to be useless as discriminating characters. The elytral sculpture is like that of a *Trypeticus*, and it would have been a matter of interest to me, had the information been forthcoming, to know whether the habits of the species led it to follow the *Platypi* or the *Tomici*; whether that is, it works for its prey diametrically into the timber, or whether it seeks out the sub-cortical species only. If the former it will singularly confirm, so far as the *Histeridæ* are concerned, my estimation of the value of the striæ on their elytra generally as guiding lines as I suggested recently in the Ann. M. N. Hist., June, 1892. Perhaps Mr. Bell will be able later to throw some light on this subject.

*NIPONIUS ANDREWESI*, sp. n.

*Parum elongatus, niger, nitidus, abdomine pedibusque rufis; elytris punctatis haud striatis; pygidio utrinque arcuatim sulcato.* Long.,  $4\frac{1}{2}$  mm.

Somewhat elongate, black, shining, legs and abdominal segments red. The head rather densely punctate, armature rather less prominent, and rather more divergent than that of *N. osorioceps*, Lew. (l. c., fig. 12); the projections distinctly 3-carinate, with some transverse sculpture behind them; the thorax about as broad

as long, with two large excavations, one on each side midway between the front and base, rather less densely punctured than the head, the punctures also vary in size; the *elytra* are more evenly punctured than the thorax, basal margin slightly elevated, without dorsal striæ; the *propygidium* somewhat closely punctured, without foveæ; the *pygidium* less densely punctured, with an arched sulcus on each side and abbreviated before the apex; the *prosternum* has a bent sulcus on each side abbreviated before and behind, the ends diverging from each other; the *mesosternum* is short, with two lateral straight grooves, and a median fovea close to the posterior edge; the *metasternum* is somewhat sparsely punctured.

*Hab.* : Kanara; found by Mr. T. R. D. Bell (No. 942).

NIPONIUS PARVULUS, *sp. n.*

*Cylindricus, nigro-piceus, nitidus; pedibus rufis; elytris tenuiter striatis; propygidio pygidioque profunde bifoveatis.* *Long.*, 2 mm.

Cylindrical, piceous, shining; the head, armature as in *N. osorioceps*, Lew. (*l. c.*, fig. 12), tricarinate, with transverse sculpture behind the carinæ, distinctly but not closely punctured, punctures varying in size, especially some before the middle of the neck, which are rather large; the thorax similarly punctate, with some of the larger punctures confluent, and formed into an irregular median canaliculation, which is shortened before the base; the *elytra* are elevated a little along the base and round the scutellar area, and are irregularly striate, somewhat like those of *N. impressicollis*, Lew. (*l. c.*, fig. 1), but the striæ are rather more punctiform; the *propygidium* sparsely but clearly punctate, with two median foveæ placed transversely to each other; the *pygidium* similarly punctured with two larger foveæ resembling those of *N. osorioceps*, Lew. (*l. c.*, fig. 12), but they are rather nearer the base, and are placed more longitudinally to each other; the *prosternum*, keel with marginal striæ joined before and behind, the striæ approaching one another slightly between the coxæ; the *mesosternum* quadrate, with a conical impression on each of the anterior angles, and a median longitudinal impression not clearly defined; the *metasternum* sparsely and irregularly punctured, with a well-marked median channel.

This is the smallest species at present known.

*Hab.* : Kanara (No. 753).

TRYPETICUS INDICUS, *sp. n.*

*Cylindricus, niger, nitidus; ♂ fronte triangulariter carinato, ♀ fronte concavo cum apice bituberculato; prosterno utrinque sulcato, sulcis antice abbreviatis.* *Long.*, 3 mm.

♂ cylindrical, black, shining; the head, forehead triangular, with a carina between the eyes and continued along the sides and meeting at the apex, the apex is slightly reflexed, behind the transverse portion of the carina the surface is microscopically strigose, with a few obscure punctures; the thorax, behind the middle of the neck there is a carina which occupies nearly one-third of the thoracic length, surface with tear-shaped or sometimes oblong punctures, not closely set; the *elytra* rather more sparsely punctured, and punctures more circular; the *propygidium* and *pygidium* are similarly sculptured, the sculpture consisting of punctures smaller and more closely set than those of the *elytra*.

♀. Forehead triangularly concave, without any marginal carina, apex of epistoma bituberculate, punctuation generally larger than that of the male; the prosternum similar in both sexes, keel very sparsely punctulate, lateral grooves not connected at the base, and markedly abbreviated anteriorly; the mesosternum is also very sparsely punctured, punctures oblong, with a straight lateral groove behind the coxæ; the metasternum is canaliculate in the middle, smooth along the borders of the channel, with oblong punctures outside the smooth borders.

Somewhat similar to *T. bombacis*, Lew., but it is larger and the lateral grooves or sulci of the prosternum are abbreviated anteriorly.

The thoracic carina of the ♂ enables me to confirm what was doubtful before, viz., that *T. bombacis*, Lew., was described from two female examples. The female of *T. indicus* and *T. bombacis* has the apex of the rostrum bituberculate.

*Hab.* : Kanara (No. 841) ; two examples.

HISTER RUGISTRIUS, *Lew.*

Ann. and M. N. Hist., 1892, p. 346.

Amongst the *Histeridæ* from Kanara there is also a fine series of this species, but I find only one in the series agrees with the type example in having the frontal stria interrupted, in others the irregular punctures in the interstice behind the anterior angle are absent, and the specimens vary in size from  $5\frac{1}{2}$  to  $8\frac{1}{4}$  mm. There are specimens in the Museum of Calcutta taken by Mr. Cameron at Bangalore.

The Firs, Inner Park Road,

Wimbledon Common : June 30th, 1893.

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#### OBSERVATIONS ON *COCCIDÆ* (No. 5).

BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

#### PLATE III.

All the species described in this paper were kindly forwarded to me on September 29th, 1892, by Mr. Douglas, who received them from the Botanic Garden at Demerara. I must apologize for having kept our Demerara friends so long waiting, but overpressure of other work prevented me from making any observations until now.

ASPIDIOTUS DICTYOSPERMI, *Morgan.*

Ent. Mo. Mag., vol. xxv, p. 352, pl. v, fig. 2.

Many specimens of a very remarkable var., of what I take to be this species, on leaves of *Areca triandra*, described below as "var. *A. arecæ*."

Scale of the ♀ circular, exuviae central, or nearly so; the first exuviae in the form of a "nipple-like prominence" (Comstock), covered with white wax in fresh specimens, but red-brown or golden red-brown in denuded specimens; nipple surrounded by a circular depression, following this is a strong circular ridge, which, in many specimens, is covered with the same white material as the nipple; these are situate on a distinct circular prominence, or boss, with nearly perpendicular sides; below this the scale becomes very flat and wide, and is of a rich orange-brown, varying to ochreous-brown.  
Diam., 1—1½ mm.

Scale of the ♂ of the same colour, and has the same structure at apex as the ♀.

Mr. Morgan, in his description of *A. dictyospermi* (l. c.), states that the ♀ scale is "greyish-white, with exuviae in the centre, depressed, of an elongate-oval shape." Thus, it will be seen that the type differs very considerably in external characters from the var. described above; the arrangement of the marginal appendages of the last segment and spinnerets of the ♀, however, agrees in every way, both with the description and figure given by Mr. Morgan; so that, in spite of the diverse character of the scale, I do not feel justified in considering it to be a new species.

#### ASPIDIOTUS COCOTIS, n. sp.

Scale of the ♀ circular, white or yellowish-white, flat; exuviae very large, central.  
Diam., 1—1½ mm.

♀ (fig. 1) with three pairs of small lobes, median pair broadest, slightly recessed, very slightly indented on their outer lateral margins; second pair emarginate on outer lateral margin; third pair of nearly uniform width throughout. There are two plates between each of the first and second lobes; three between the second and third; and beyond this there are seven or eight plates: two or three of which are serrated. All the plates, however, are most difficult to determine, and it is only in a few specimens that they can be traced at all. There are no spines or groups of spinnerets in any of the specimens examined.

Both scales and insects are very badly infested with fungi; the latter to such an extent that the form of the body cannot be ascertained. I was hoping that the species might prove the *A. destructor*, of Signoret, which is said to be very injurious to palms, but there is no resemblance between them.

*Hab.*: on *Cocos nucifera*, cocoa-nut palm, to which it must be very destructive, judging from the number of scales present upon the leaves.

#### ASPIDIOTUS AFFINIS, n. sp.

Scale of the ♀ high convex, slightly elongate, or more or less circular, greyish-brown; exuviae a little on one side, covered with a pale reddish-brown wax, which, when removed, exposes a sharp "nipple" of a brown colour, very like *A. rapax*, Comstock.

The ♀ has three pairs of lobes (fig. 2): median pair convergent, very large, deeply notched on the outer lateral margin, and sometimes slightly so on the inner

margin, ends rounded; second lobe deeply emarginate on both sides; third lobe very small, often emarginate at base on both sides, and presenting the form of a spear-head. Between the first and second lobe, and near the base of the former, is a strong spine, and immediately following each of the second and third lobes are two spines arranged close together; about midway between the last pair and the base of the segment are one or two shorter spines. There are also scattered spinnerets, as shown in the fig. Groups of spinnerets and plates wanting, and frequently the spines are broken away. Described from 13 ♀, and many scales.

♂ scale smaller, but of the same colour as the ♀.

Unfortunately, I cannot at present furnish the name of the food-plant, as the label has been mislaid, but our Demerara correspondents will no doubt be able to do so.

### DACTYLOPIUS NIPÆ, Maskell.

Trans. N. Z. Instit., 1892, p. 232 (1893).

♀ adult, short oval, covered with yellowish-white cereous matter, arranged almost in the same way as in the genus *Orthezia*, but much less compact; margin all round with a series of downward-curved, broad, laterally joined, lamellæ, longest behind; dorsum rarely presenting regular plates: when such is the case, however, they are arranged in thick squarish masses, with the body of the insect showing through the divisions; generally, the dorsum is covered with one conglomerate mass, with little or no segmentation.

When the insect is treated with potash, it gives off a dark reddish-crimson stain, and the shape of the body is short oval, but widest behind. Antennæ of seven joints (fig. 3); rostrum biarticulate, short, widely rounded at apex, the latter with two long, and two or more short, delicate hairs. Legs (fig. 3a): trochanter with a rather long hair, femur with a short hair, both near the apex; tibiæ a very little longer than the tarsi, the latter with two fine hairs at apex; digitules to claws and tarsi slender, and short; the tarsal pair scarcely extending beyond the claw; anal lobes (figs. 3b and 3bb) very large, each with a long hair at apex, and near them on the outer margin are two short stiff spines; anal ring with six long hairs (fig. 3c); dorsum with large and small spines, arranged irregularly and wide apart, and some similar on the margin.

Long., 1—2 mm. (when denuded of waxy plates, a little smaller).

♂ sac pure white, composed of a rather loose felting.

♂ unknown. The ♂ sacs were very abundant, but the imagines had hatched from them when received.

*Hab.*: on *Nipa fruticans*, an aquatic palm, and is said to be "very destructive."

I am very doubtful as to the position this species should occupy. In the form of the antennal joints it is clearly *Dactylopid*, but the very conspicuous anal lobes are abnormal. Were it not for the curious granular covering of the body, and the long terminal joint of the antennæ, I would refer it to the genus *Rhizococcus*, but the characters given by Mr. Maskell (Trans. N. Z. Inst., 1891, p. 30) will not admit of my placing it in the *Acanthococcidæ*.

DIASPIS OPUNTIAE, *n. sp.*

Scale of the ♀ circular, or nearly so, pale yellowish-brown; exuviae very dark red-brown, distinct, central, or more rarely a little to one side. Diam., 2—2½ mm.

♀ adult almost circular; groups of spinnerets well separated, and arranged as follows: anterior, 7—10; anterior laterals, 16—20; posterior laterals, 11—14. In addition to the above there are numerous other spinnerets or pores arranged in three interrupted, perpendicular rows, of these I counted no less than 140 in a single specimen. There are also some large elongated pores near the margin, arranged as shown in fig. 4. There are three pairs of well developed lobes, median pair largest, divergent, emarginate on inner margin; outer margin curved outwardly, ends slightly indented; 2nd and 3rd pairs bifurcated; the lobules nearly equal; the spines and plates are arranged as shown in the illustration (fig. 4).

Scale of the ♂ with a central carina only, margins almost flat; basal portion of the same colour as the scale of the ♀, apex lighter; exuviae pale yellow-brown. Scales in a compact mass, occupying one side of the plant, and but few with the females which covered the opposite side of the plant. Looked at in a mass they appear of a pale brown colour. Long., 1 mm.

This species closely approaches *D. cacti*, Comstock (Report, 1883, p. 91, fig. 11), but there is no mention of the "numerous spinnerets or pores" arranged in perpendicular rows, or of the elongated pores near the margin; were it not for these, I should refer the species to the above, but I take it that these are of specific importance. Described from thirteen ♀ and many scales.

*Hab.*: on *Opuntia elongata*.

On *Ficus benghalensis* and *Anona squarrosa* (sugar apple) quantities of *Aleurodicus anonæ*, Morg. The leaves of the former were completely covered with the beautiful long glassy filaments of the pupæ, presenting a very pretty appearance.

*Ichnaspis filiformis*, Doug.—Many specimens on leaves of *Magnolia grandiflora*.

*Diaspis Boisdualii*.—Abundant on a *Catasetum* (Orchid).

*Prosopophora dendrobii*, Doug.—Very numerous on stems of *Croton*.

*Lecanium begoniae*, Doug.—A few ♀ on leaves and stems of *Begonia*.

## EXPLANATION OF PLATE III.

*Aspidiotus coccotis*, ♀, fig. 1, margin of last segment.

" *affinis*, ♀, fig. 2, " "

*Dactylopius nipa*, ♀, fig. 3, antenna; 3a leg; 3b, anal lobes, ventral; 3bb, anal lobes, dorsal view; 3c, anal ring.

*Diaspis opuntiae*, ♀, fig. 4, margin of last segment,

Chester: January, 1893.



*Pieris Daplidice at Eastbourne.*—I beg to inform you that on Sunday last, July 9th, at Eastbourne, I captured a fine specimen of *Pieris Daplidice* ♀. Mr. Percy Hutchison and Miss Lillias Earle, both Members of this Company, were present and saw the insect alive.—CHARLES MASTERS, Theatre Royal, Aldershot : July 13th, 1893.

*Gynandrous aberration in Argynnis Paphia.*—A very remarkable example of this has been sent up for examination by Mr. P. Cardew, taken by himself in the New Forest. It is not evenly divided—half male and half female—but is fully three-fourths female, both wings on the right side and two-thirds of the hind-wing on the left being of that sex, with the usual olive tinge and shading on the dark fulvous colour, the larger spots, and simple nervures ; while the left fore-wing is male, with bright fulvous colour, smaller black spots, and the usual broad black suffusions on the middle portions of the nervures, and only the base shows a slight clouding of female colour. The left hind-wing is more curious ; the anterior portion to between the second and third nervures from that margin, is of the male colour, the remainder female, and the line of distinction is sharply drawn the whole length of the wing. There is a patch of fulvous male colour also on the left shoulder of the thorax. The structure of the apex of the abdomen is rather obscure ; one harpe (clasper) is present, belonging to the left side, but the rest is rather shrunken and twisted, and hardly presents the appearance of the structure of the other sex.—CHAS. G. BARRETT, Nunhead : July, 1893.

*Argynnis Paphia, var. Valezina, near Basingstoke.*—A friend and myself have taken six *Argynnis Paphia, var. Valezina*, in a beech wood, near Basingstoke, this season, in the same spot where we took them two years ago ; on July 8th we netted five, and my friend had taken one a day or two previously, but the most notable fact about them was that while *Valezina* was in fine condition, the type was very ragged and worn, not a good one to be seen, so that *Valezina* seems to be much later in emerging. I had the same experience two years ago. The var. seemed as plentiful as the typical females, for we certainly saw as many of the former as the latter.—A. H. HAMM, 24, Hatherley Road, Reading : July, 1893.

*The second brood of Leucophasia sinapis.*—This species was well out here on July 2nd, and had probably been so from the last week in June, by the worn appearance of several taken ; and, judging by the short time I was amongst them, appeared quite as plentiful as the first brood, and equal to it in size.—ID.

*An unusual habitat for Leucophasia sinapis.*—I have never hitherto seen this species except in or on the borders of woods ; and my experience of it has been limited to the woods of Sussex, Hampshire (New Forest), Herefordshire, and North Lancashire. From the woods of this neighbourhood the "wood white" appears to be absent ; but it occurs plentifully on the beach at the base and up the slopes of the cliffs about three miles east of this place, its range extending thence some miles towards Beer Regis. The commonest species of *Leguminosæ* in the locality is

*Lathyrus sylvestris* (the "wood vetch"), and this may probably serve as the food of the larva. *Hesperia Aotæon* also occurs in the same district; but is extremely local.—H. Goss, Sidmouth, Devon: *July 17th*, 1893.

*Lycæna Arion* in North Cornwall.—I am glad to be able to record the occurrence of this species in a new locality. Many of the males were worn on the 20th ulto., and the last straggler of the females which I caught to-day was *passé*.—ID., North Cornwall: *July 1st*, 1893.

[Those entomologists who have read my remarks at p. 135 *ante* will understand that it is with great regret I find this insect is being pursued into what may probably be looked upon as its last stronghold in this country. I purposely omit the locality, which is quite new.—R. McLACHLAN].

*Larvæ of Lycæna Arion*, L., on *Origanum vulgare*.—On the 1st ulto. I found five empty ova of *Lycæna Arion*, L., in the Vallon des Fleurs, Nice, on *Origanum vulgare* (marjoram), and, supposing that where there had only recently been eggs there would probably be caterpillars, I searched and found ten larvæ, measuring  $\frac{1}{2}$  of an inch each. They were all found on two plants. The ova were laid on the small bracts of the flowers, which the caterpillars devour, together with the petals. As far as I am aware, this is a new food-plant for the larva of *Lycæna Arion*, which is only stated as living on *Thymus serpyllum* (wild thyme), though I have long suspected it to feed on *Origanum vulgare*—ever since July 22nd to 26th, 1890, in fact, when I saw females of the species apparently ovipositing on flowering plants of *Origanum* in the Val Obscur (Nice), where this plant grows in abundance, far surpassing the thyme in quantity. I may add that this year I took, together with the caterpillars above referred to, seventeen imagines of *Lycæna Arion* (June 29th, 30th and July 1st). The perfect insects are now beginning to get rather worn.

Millière says that *Arion* is " . . . assez rare," but, from my experience, I should be inclined to consider it only "local," but common where it occurs.

In the two seasons (1890 and 1893) in which I have collected *Arion* on the coast here, I have met with a beautiful variety which seems to be confined entirely to the female, being found in the proportion of about one in six examples of the type. This form measures  $1\frac{2}{3}$  inches in expanse, and in colour is of a pale and brilliant electric-blue, the spots on the fore-wings are very large and jet-black and coalesce, with the exception of the two nearest the inner margin; the hind marginal band is very broad and black. The dots on the hind-wings, however, are normal both in size and coloration.—F. BROMILOW, Nice, France: *July 3rd*, 1893.

*Colias Edusa*.—We netted a ♀ of the above on the high ground between the Mumbles and Langland Bay, near Swansea, on July 6th. It was a good deal worn, and had probably hibernated.—A. NASH, Standish Vicarage, Stonehouse, Gloucestershire: *July*, 1893.

*Laverna Stephensi*.—This pretty little species may be found in July on the trunks of three or four of the old oaks on Tooting Beck Common. I have never

found it common, and it wants a deal of finding, as it hides itself in the cracks of the bark, where I have no doubt the larvæ feed.—SAMUEL STEVENS, Loanda, 61, Beulah Hill, Upper Norwood : *July 8th*, 1893.

*Coccyx Ochsenheimeriana* at Waltham Cross.—On my return from town (May 1st) my little boy Alfred showed me a moth which he had taken during the day in the garden. It has since been identified by Mr. Barrett as *Coccyx Ochsenheimeriana*. So far as I know there is not a spruce fir within a quarter of a mile, but there was a plant of *Picea pinsapo* within a few yards. The wings were hardly dry when the insect was caught, so that it must have fed close at hand.—W. C. BOYD, The Grange, Waltham Cross : *July*, 1893.

*The food-plant of Argyrolepia Baumanniana*.—In reference to Mr. A. H. Hamm's note on page 166, I think it may be regarded, not only as "probable," but as almost certain, that *Scabiosa succisa* is the ordinary food-plant of the larva of *A. Baumanniana* in this country, for, in addition to the fact that the insect seems only to occur with us where that plant is abundant, Sorlhagen, in his "Kleinschmetterlinge der Mark Brandenburg," states, on the authority of A. Stange, that the larva is to be found in the rootstock of *Scabiosa ochroleuca* from autumn till spring. In fact, so sure have I felt for the last few years that the larva in Britain *must* feed in the rootstock of *Scabiosa succisa*, that, with so many other "fish to fry," I have never given up the time required for proving it, though it would be advisable to do so.—EUSTACE K. BANKES, The Rectory, Corfe Castle : *July 10th*, 1893.

*Early Lepidoptera*.—In an exceptionally early season like the present, one is naturally prepared for surprises, but I hardly expected to meet with all of the following when collecting on a warm and sheltered piece of undercliff on our Purbeck coast on May 31st :—one *Fanessa urtica*, evidently fresh from the pupa; *Melanargia Galatea*, a few males in splendid condition; three or four *Epinephale Janira*; *Hesperia Actæon*, plentiful (from their numbers and the already worn condition of some of them, it seemed probable that the imagines must have begun to emerge about ten days previously!); one *Acidalia marginipunctata*; two or three *Eubolia bipunctaria*; one *Odontia dentalis*; *Ebulea crocealis*, not uncommon; *Scoparia dubitalis*; *Platytes cerussellus*; one *Homæosoma nimbella*; one *Penthina gentiana*; one *Aspis Udmanniana*; *Ephippiphora cirsiana*, not uncommon; two *Dichrorhampa acuminatana*; four *D. senectana*, taken amongst *Chrysanthemum leucanthemum*, in the roots of which the larvæ evidently feed in that locality; one *Eupæcilia atricapitana*; *Ptocheusa inopella*, not uncommon; one *Pt. subocellea*; *Anacamptis anthyllidella*; one *Coleophora discordella*; two *C. conyzæ*; one *C. troglodytiella*; *Elachista pollinariella*; three *Oxyptilus teucarii*; one *Aciptilia batiodactyla*; and one *A. pentadactyla*. No doubt many more might have been added, but as my whole time and attention were devoted to working for *D. senectana*, I only netted such other insects as crossed my path.—ID. : *July 11th*, 1893.

*Hemiptera near Oxford*.—I have to record the following *Hemiptera* from Bagley Wood, in the immediate neighbourhood of Oxford, during the present year. *Centrotus cornutus*, Linn., common, by beating young oaks in the evening; I have taken this

species very rarely in the daylight, but I took about twenty specimens by beating on April 29th. *Triecphora vulnerata*, Illiger, not uncommon, by sweeping alders; several specimens of this conspicuous insect have been taken by myself and others during April. *Acanthosoma hæmorrhoidalis*, Linn., one specimen by beating hawthorn on April 28th. *Pentatoma baccarum*, Linn., several specimens by sweeping and beating low bushes and hawthorn with the preceding. *P. dissimile*, one specimen on hawthorn, April 28th. *Podops inunctus*, Fabr., one specimen by sweeping dead nettles on April 29th. *Sehirus bicolor*, rather common, on dead nettles in company with the preceding. I have also to record *Ranatra linearis*, Linn., from Port Meadow early in the present year.—JOHN W. SHIFF, Oxford University Museum: May 1st, 1893.

*Hermæophaga mercurialis* at Oxford.—Canon Fowler (Col. Brit. Isl., iv, p. 361), in describing this species, says, that it has apparently not occurred in the Midlands. But during the past spring (March 20th, 1893), whilst collecting in Bagley Wood, I came upon a small patch of *Mercurialis perennis*, upon which a number of *H. mercurialis* were feeding in small numbers. At the slightest rustle of the leaves they rolled off, feigning death. They did not appear to confine themselves to the upper portion of the leaves, for I noticed several feeding on the under-sides; I also noticed a number feeding (or rather sitting) on the young leaves of a stunted sallow near the patch, in company with a few specimens of *Crepidodera chloris*, Foudr. This latter insect is, I believe, more common and widely distributed than is thought, and is often passed over for *C. aurata*, Marsh., which is generally common, and which somewhat resembles it in general appearance. *C. helzines*, Linn., is common in Bagley Wood on the young sallows in the spring.—ID.: June 7th, 1893.

*Onthophagus taurus*, Linn., introduced from the Channel Islands.—A few weeks ago a local fruiterer and potato merchant forwarded me one or two specimens of an *Onthophagus*, which I instantly recognised as *taurus*. I immediately began to hunt for more, and was rewarded by finding two (both males) in the peat in which the young potatoes were packed from the Channel Islands. This instance clearly shows how one of our rare British beetles may, all circumstances favourable, find a home in any secluded portion in the British Islands. I may here mention that of the other species of the genus, *O. nuchicornis* was very common imbedded in the earth under a dead rabbit near Bagley Wood, whilst only one specimen of *O. vacca* was taken in company with it. *O. ovatus* is very common in Bagley Wood.—ID.: July 1st, 1893.

*Coleoptera* near Cardiff.—The present season has so far been remarkably prolific in the Cardiff district, and the following species have occurred within the past two months in a radius of about three miles:—*Elaphrus uliginosus* (one specimen), *Malthodes marginatus*, *M. minimus*, *M. dispar*, all common; *M. atomus* and *M. guttifer* scarce; while *M. misellus* was common on the banks of the Taff for a few days, and then suddenly vanished. A seventh species of the genus (*M. flavoguttatus*) also occurred a year or two ago. Of *Aphodius* I have taken fourteen species this season, including *sticticus* (very scarce), *tristis* (common), *rufescens* and *fatens* (rather common). *Anthonomus ulmi* has been very common, and I may also mention the simultaneous occurrence, on a small bed of *Scrophularia*, of *Cionus scrophularia*, *verbasci*, *blattaria*, and *pulchellus*.—B. TOMLIN, Llandaff: July, 1893.

*Coleoptera in the Hastings District, 1892.*—The following are some of the best species taken by me during the last season. At Guestling, from grass tufts, early in spring, *Anchomenus livens*, *Lebia chlorocephala* (2), *Badister sodalis*, *Megacronus cingulatus* (3), *Plinthus caliginosus* (sparingly), *Phytobius 4-tuberculatus*, *Apion sorbi* (1), *Scydmanus hirticollis*, *Cænopsis Waltoni*, *Acalles pinoideus*, *Leptinus testaceus* (1), and *Conipora orbiculata*. Evening sweeping produced *Euthia Schaumi* (1), *Anisotoma grandis* (2), *Bagous subcarinatus*, Gyll., *Rhinoncus denticollis* (2), *Encephalus complicans*, *Homalium exiguum* (1), *Gymnetron melanarius*, *Cæliodes geranii*, and *Dorcatoma flavicornis*. Three specimens of *Scydmanus rubicundus* occurred in rotten wood.—W. H. BENNETT, 11, George Street, Hastings: July, 1893.

*Eubria palustris* at Fairlight.—I am pleased to be able to record this little rarity from this district. I was casually sweeping a marshy spot where I sometimes get *Phytobius 4-tuberculatus*, when I found a specimen of *Eubria* in my net; and continuing to sweep, I shortly took a second specimen. I then set to work looking for the beetle in its haunts, and was fortunate enough to find them in a very wet place among the grass and moss. I found the best way to get them was to clear away the long grass, and then very patiently watch the wet moss and small plants. The *Eubria* then crawl up the short stems and on the moss, sunning themselves. They are not at all easy to see, as after getting into the required position, they draw back their antennæ and remain perfectly motionless. Even when seen they are not easy to get, as they fall to the ground at the slightest touch, and are not easily seen again. However, I managed to get about thirty specimens, and a friend who was with me took fifteen. A second visit to the spot three days later produced only three specimens between two searchers in an hour and a half.—ID.

*Anthrenus varius*, &c.—During the last week I have taken about a dozen of these pretty little beetles on the sweet-scented flowers of *Erigeron philadelphicum* in the garden, but only during bright sunshine, and then but two or three at a time; when the weather is dull they are not visible. They affect the discs of the flowers, and busy themselves with poking their noses down among the florets, moving briskly about in the intervals of feeding.

These flowers are also attractive to many other insects—*Hymenoptera* and *Diptera*, but they rarely settle; they content themselves with hovering around, as if perfumed air was sufficient for them. One day also a male *Trochilium tipuliforme* appeared.—J. W. DOUGLAS, Lewisham: June 4th, 1893.

*Chrysomela gættingensis* at Box Hill.—I captured a pair of this species at the end of June under a stone near the foot of Box Hill.—T. HUDSON BEARE, Richmond, Surrey: July 13th, 1893.

*Chrysomela gættingensis*.—I see the Rev. Canon Fowler records this beetle from Sherwood Forest. I took a specimen near Cresswell at Easter, and Mrs. Brierley, of this town, brought me two specimens picked up casually near Boston Spa, Yorks. I have also taken *Dryocates alni* freely here on alder.—S. L. MOSLEY, Beaumont Park Museum, Huddersfield: July, 1893.

*Dryophanta disticha*.—This gall, which Cameron gives as "rare," is abundant in a wood near here just now. I could send specimens to any one requiring it. Can any one send me the cotton gall (*A. ramuli*)?—ID.

*Spilochalcis marix*, Riley.—Some months ago Mr. Morris, of Kew, sent to Jamaica a number of cocoons of *Attacus Cynthia* which he had obtained from M. Wailly. They were placed in my care at the Museum, and many of them produced a parasitic *Chalcid*, these insects emerging some time before any of the moths. I sent some of the *Chalcids* to the U. S. Department of Agriculture, and Mr. L. O. Howard writes me that Mr. Ashmead has identified them as *Spilochalcis maria*. This is a well-known parasite of *A. Cynthia* and allied moths in America, and, as Mr. Howard remarks, it must have been introduced into England.—T. D. A. COCKRELL, Las Cruces, New Mexico: June, 1893.

[We are informed by Mons. Wailly that the cocoons of *A. Cynthia* referred to were imported by him from America. The occurrence is interesting, as proving the vitality of both moth and parasite under the circumstances.—EDS.].

*Pith of New Zealand Flax*.—In the Ent. Mo. Mag. for February and March I notice your remarks and those of Mr. Coryndon Matthews on the use of artichoke pith and felt for mounting small insects. I herewith forward a sample of another material which I find to answer admirably for the same purpose; it is the pith of the dried flower stems of the New Zealand flax (*Phormium tenax*). Although, perhaps, not quite equal to artichoke pith, it is, nevertheless, an excellent article for fine work and for lining store boxes. It is obtainable in unlimited quantities in pieces varying from one inch to two inches square, and can be easily cut to the required thickness. It is extremely light and clean, and the larger square pieces when grooved in the centre make setting boards second to none for *Micro-Lepidoptera*. What do you think of it?—W. W. SMITH, Ashburton, New Zealand: May 15th, 1893.

[Mr. Smith kindly forwarded samples of this pith. It is of extreme lightness and tolerably fine in texture, though not equalling artichoke pith in this latter respect. It does not turn the points of Nos. 19 and 20 English pins, save towards the outside margins of the pieces (this could be obviated by trimming). For lining store boxes, &c., I consider it decidedly preferable to *Agave* pith. Its texture is scarcely fine enough for mounting specimens on for the cabinet, and for this purpose its colour (a kind of pale purplish-brown) is also objectionable; but it is just possible the colouring matter might be discharged by some process.—R. MCLAUGHLIN].

## Obituary.

*Francis Polkinghorne Pascoe, F.L.S., &c.*, was born at Penzance on Sept. 1st, 1813, and died at Brighton June 20th, 1893. He was educated at the Grammar School of his native town, and subsequently entered at St. Bartholomew's Hospital as a student. He was admitted M.R.C.S. in 1835, and soon afterwards obtained an appointment in the Navy as Surgeon, serving on the Australian, West Indian and Mediterranean Stations. In 1843 he married Miss Glasson, of Falmouth, and

retired from the service, settling near St. Austell, in the vicinity of which he had a property producing Kaolin (China clay). He was left a widower in 1851, and then settled permanently in London, and devoted his attention entirely to Entomology and Natural History generally. But until lately he travelled much, either alone or in the company of one or more of his daughters, and in this way he traversed nearly over the whole of Europe, North Africa, &c., and once made a voyage to the Lower Amazons to make personal acquaintance with the natural marvels of that rich region. But he had not the aptitude for collecting, and thus the results of his travels were small in materials as compared with what they might have been. As a writer he commenced with a botanical paper in Henfrey's Botanical Gazette in 1850, enumerating unrecorded Cornish plants. But he mainly devoted himself to *Coleoptera*, commencing with the Longicorns, on which he published much, including "*Longicornia Malayana*," enumerating and describing the species collected by Wallace, which formed Vol. iii of the third series of the Trans. Ent. Soc. Lond., 1864—1869, containing 712 pp. with 24 coloured plates. Subsequently the *Colydiidae* and cognate groups, and still later the *Curculionidae*, engaged his attention, and the number of his published papers on *Coleoptera* is very great. His collections of *Coleoptera* he sold to the British Museum not long before his death, when ill health warned him that he could make no further use of them: we believe they contained above 2500 type specimens of species described by him. For many years he had also accumulated an enormous mass of materials illustrative of a "*Systema Naturæ*," mainly arranged in pasteboard boxes, and mostly mounted on card quite irrespective of size, a practice that caused him to be the object of a certain amount of good natured "chaff." His active mind was never at rest, and latterly he produced quite a small library of 12mo works on the animal kingdom, mostly compilations, the *raison d'être* of some of which was difficult to imagine, but some were decidedly useful, and especially the second edition of his "*Zoological Classification*" (1880), in which an enormous amount of information is compressed into a small compass. He was an ardent admirer of Darwin and a staunch evolutionist, but a strong disbeliever in Natural Selection in the sense in which the term is applied by many post-Darwinians, and in 1890 he gave vent to his strong feelings on this point in an exposition of the Darwinian theory, which was the last of his separate publications: we think it did not attract the amount of attention the author assumed it would. He was also the editor of the short-lived "*Journal of Entomology, descriptive and geographical*." He joined the Entomological Society of London in 1854, and was President in 1864—65, and there was scarcely any more regular attendant at the Meetings; was a Member of the Entomological Society of France since 1862; and belonged also to the Belgian, Stettin, and other foreign Societies. He became a Fellow of the Linnean Society in 1852, and was for many years on the Council of the Ray Society and the Scientific Committee of the Royal Horticultural Society; it may be said of him that he was never happy save in the company of Naturalists.

In private life Pascoe showed himself, as in his writings, a man of strong bias and opinions, but he never allowed these feelings to influence his friendships. In society he was amiable to a point, and the social gatherings at his house were always enjoyable. Less than two years ago he was overtaken by bad health, and was advised to reside in the country, which he did, firstly at Tunbridge Wells and latterly at

Brighton, where he died somewhat suddenly. He leaves three daughters (to one of whom we are indebted for particulars of her father's early life). An only son, a young lieutenant in the Navy, died in 1872, to his father's great grief. In addition to his collections, Mr. Pascoe amassed a very extensive Library on all branches of Natural History.—R. McL.

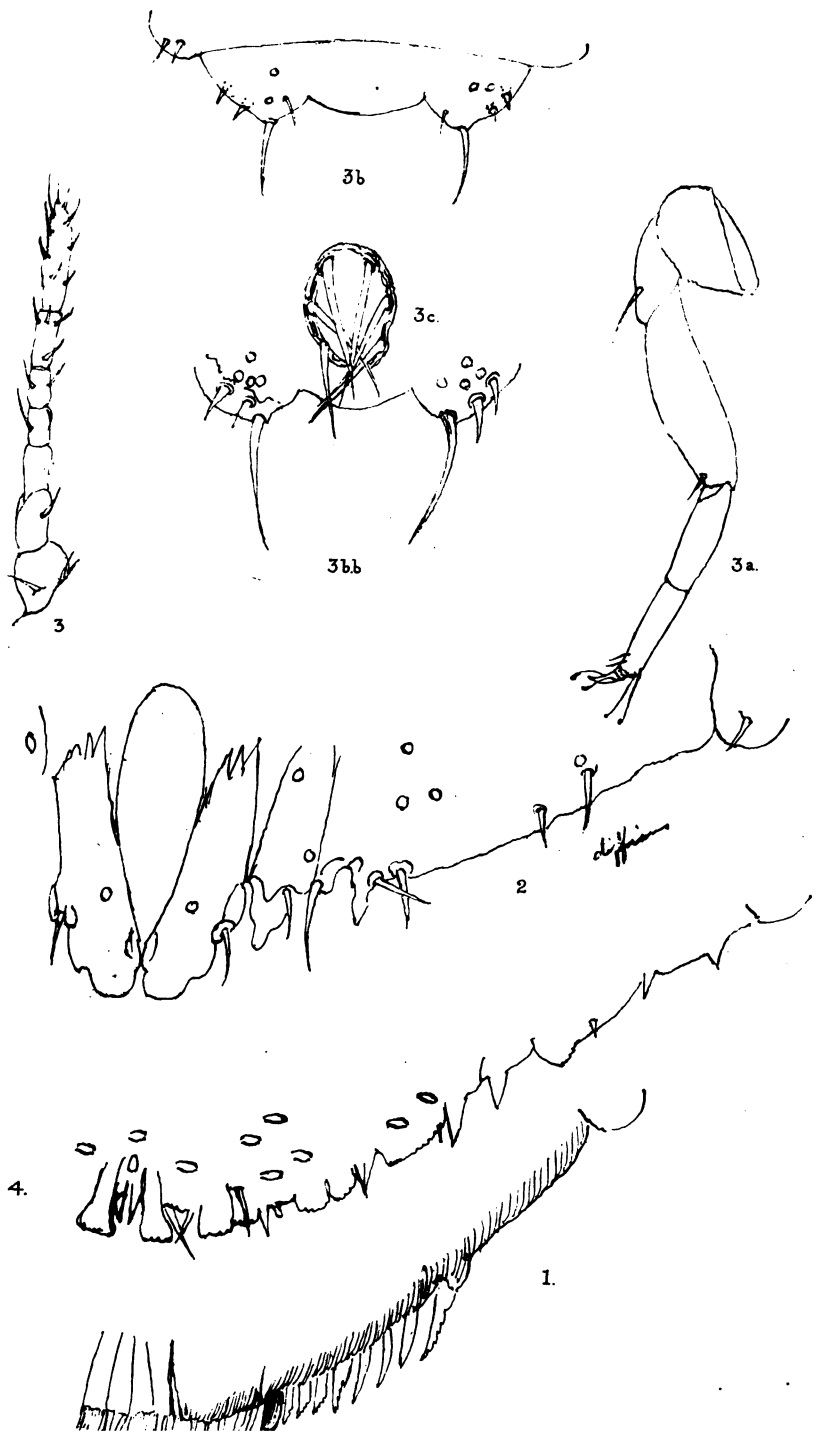
*Rev. Henry Burney, M.A.*—We have to announce the death of Mr. Burney, which occurred on July 16th, in his 80th year. He graduated at Oxford, and was ordained so long ago as 1839. For the last 47 years he had been Rector of Wavendon, in Buckinghamshire. He was a well known student of British *Lepidoptera*, and amassed a large collection. He was a constant contributor to the "Intelligencer," and his name appears frequently in the pages of this Magazine.

## Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: July 13th, 1893.—CHAS. G. BARRETT, Esq., F.E.S., Vice-President, in the Chair.

Mr. C. Oldham exhibited specimens of *Macaris liturata*, Clerck, *Melanthia albicollata*, L., and many others, some fine forms of *Odonestis potatoria*, L., and a specimen of *Plusia moneta*, captured at Woodford on June 2nd; Mr. Adkin remarking that this species appeared to be distributing itself gradually over the country. Mr. South showed a remarkable form of *Triphana pronuba*, L., it being the typical *pronuba* on one side, and the variety *innuba*, Tr., on the other, also a series of *Coccyx Ochsenheimeriana*, Zell., and a variable series of *C. tadelia* from Middlesex. Mr. Fenn exhibited long bred series of *Dicranura bifida*, Hb., *Boarmia roboraria*, Schiff., and *Notodonta dictæa*, L., from Bexley, the New Forest, and Deal respectively. Messrs. Adkin, South, Frohawk, and Briggs showed very long series of *Pieris brassica*, L., from many parts of England, Scotland, and the Isle of Man, &c., for the purpose of showing the variation existing, both in size and markings. Mr. Adkin drawing attention to the manner in which the depth of colour in the tips varied from black to dove-grey. One shown by Mr. South was no larger than an average *Pieris rapæ*, L. Mr. Frohawk's comprised, amongst others, a number from Harwich, these corresponded to the southern French type, and had, no doubt, immigrated. Mr. H. Moore showed three specimens of the harlequin beetle, *Acrocinus longimanus*, from Trinidad, &c. Mr. Auld, a fine var. of *Lomaspilis marginata*, L., from Folkestone. Mr. Step, a number of pupæ of the bacon beetle, *Dermestes lardarius*, which he stated were being experimentally tried as bait for fishing when in the larval condition. Mr. Barrett mentioned a curious instance in which a number of Lepidopterous larvæ had been found in earthen cells in a book drawer, and were supposed to have been placed there by one of the fossorial *Hymenoptera*. Mr. West, of Streatham, showed *Sesia bembeciformis*, D. L. Mr. Turner, two varieties of *Argynnis Selene*, Schiff., and a number of *Tortrices* and *Tineæ*, including *Penthina pruniana*, Hb., *Sciaphila subjectana*, Gn., *S. hybridana*, Hb., *Tortrix ministrana*, L., *Phoxopteryx Mitterbacheriana*, Schiff., *Nemophora Swammerdamella*, L., &c. Mr. Briggs also exhibited a portion of the outer covering of a tree wasps' nest, which was curiously striped with blue, the insects having no doubt been using blue paper or other material of that colour in its formation.—H. WILLIAMS, *Hon. Secretary*.







NOTES ON THE EARLIER STAGES OF THE *NEPTICULÆ*,  
WITH A VIEW TO THEIR BETTER RECOGNITION AT THIS PERIOD  
OF THEIR LIFE.

BY JOHN H. WOOD, M. B.

Nowhere, perhaps, in the whole range of the *Micro-Lepidoptera* does the field naturalist find a more fascinating group than the *Nepticulæ*. They are so rich in species as to form almost a study by themselves, whilst, in their pursuit, the chances of making fresh discoveries are so great, that an especial excitement is given to the chase. They may be collected in one state or the other the whole season through, but it is in the larval condition, and when autumn is drawing to a close and little else to be done, that they are in greatest force and best obtainable. Then it is, that armed with the simplest of *impedimenta*, a lense, and a few small tin cases to receive the mines as they are sorted, the collector can spend many a pleasant hour among the woods and hedgerows, and find his occupation so profitable, that he will scarcely miss the wealth of insect life that has long since taken its departure with the fruitful days of summer. Nothing too can be more interesting than the objects of his search. There, in the small compass of a leaf, lies open before him the whole life-history of the insect, from the egg to the full-fed larva. If there is any drawback to his enjoyment, it is the uncertainty he may feel in sorting his spoils. To be in doubt, for instance, whether or no there may be a few mines of *regiella* among the heap of hawthorn leaves, which his very uncertainty has led him to gather so wastefully, is at least unsatisfactory, and not to be compared for a moment to the pleasure of knowing (if that be possible) that the dozen or more leaves, carefully put away in a box by themselves, are every one of them tenanted by that rare species, and by nothing else. And that it ought to be possible to distinguish in the larval state, without hesitation, all our British species, I thoroughly believe, for the reason that we have in these insects an unusual number of distinct lines of enquiry by which to reach a decision. First, there is the food-plant; then the position of the egg; next the form of the mine; and, equally important, the arrangement of the frass; and, last of all, the characters of the larva. Surely, with such an array of signposts, it will be hard to miss the way, unless it be in the case of some specimen or other which is not true to character in all its points; but even here a pretty good guess can generally be made, and we shall be saved the disappointment of

discovering, when the moth appears, that what we had hoped might be the vanguard of a new species just about to invade our district, was only an old friend in a new guise.

I propose in these notes to examine, in the first place, each of these several heads, food-plant, egg, &c., separately, and afterwards to apply the results for distinguishing between certain allied species which are usually considered hard to separate in the larval condition. If, among much that is of necessity common knowledge, there should be anything new or helpful in what I am about to write, it must be chiefly ascribed to my good fortune in living in what I believe to be quite a paradise for these charming little insects. My hunting ground is a bit of rough, hilly country on the limestone, barely three miles across in any direction; and in this small space rather more than fifty species have already been taken. My field of observation, therefore, has been both rich and compact, as well as close at hand. Moreover, for years I have been devoted to the subject, and even now, on the return of autumn, the old interest revives as keen as ever, and sends me off to some favourite corner of my ground, there to while away my leisure moments. Purely local, then, as my experience has been, it has, nevertheless, been gathering long, and from a field sufficiently ample; and I mention this, lest it might be thought that I have attached too great importance to some of the characters I shall draw attention to, which a wider outlook would not warrant.

#### FOOD-PLANT.

Little can be said here that is not already well known. Particular natural Orders, as might be expected, are especial favourites with our insects. The *Rosaceæ* and *Amentaceæ* supply between them the food-plant of something like five-sixths of the British species; and not only so, but the favouritism extends to particular members of these Orders. Thus the birch supports at least ten species, the oak five, the hawthorn and apple also five each, then four feed on the roses, three at least on the willows, the same number on pear, and so on down the list, until at last we reach an insignificant minority of two or three plants which are tenanted only by single species. Out of the nine other productive Orders, the *Urticaceæ* give us the elms which support three species, the *Ericaceæ* supply two plants, each tenanted by a single species, whilst the remaining seven (although amongst them are groups of great extent like the *Leguminosæ* and *Labiataæ*) contain but one kind of plant each, acceptable to the *Nepticulæ*, and each kind is

tenanted only by a single species. In other words, the plants of the two favoured Orders are for the most part many-tenanted, and carry amongst them nearly sixty of our species, whilst those of the nine ill-favoured ones are, with the exception of the elms, single-tenanted, and amongst them all carry but twelve, a very curious and striking contrast. I need, therefore, scarcely observe that it is to the favoured Orders, the *Rosaceæ* and *Amentaceæ*, that the eager collector naturally turns in the expectation of making new discoveries, and it is also among them that so many of his difficulties arise in the endeavour to discriminate between the mines of the different species—difficulties that would be increased tenfold, were it not for the circumstance that each *Nepticula*, instead of having a plurality of foods as each plant has commonly a plurality of insects, is almost invariably limited to a single food-plant. The following include all the exceptions I am acquainted with. Both the nut species, as is well known, are often found on the hornbeam (*Carpinus betulus*); *æneofasciella* is partial to *Potentilla tormentilla*, in addition to its more usual food, the agrimony (*Agrimonia eupatoria*); *oxyacanthella* occurs commonly on apple and pear, as well as hawthorn; *atricolella* on apple and hawthorn, but never also on pear, so far as I know; *angulifasciella* I have met with in the leaves of *Poterium sanguisorba* quite often enough for its presence not to be accidental; but of all troublesome species in this respect nothing can rival the bramble feeder, *aurella*: I have little belief in such species as *splendidissimella*, the *Nepticula* of the raspberry and dewberry, and *gei* that of the *Geum*, and in spite of the food-plants would refer both to *aurella*; it is also found frequently on strawberry and agrimony, and on one occasion I bred it from a small colony on meadow sweet (*Spiræa ulmaria*), whilst other observers could probably add still further to its dietary. These, perhaps, pretty well exhaust the exceptions among the British species, if we exclude some which feed on the roses, willows and poplars respectively, where the distinctions of the botanist do not appear to be altogether recognised by the insects.

#### THE EGG.

By tracing back the mine to its starting point, the egg, or rather its empty shell, can be readily found. It is of good size for such small insects, roundish-oval in outline, moderately domed above and flattened beneath, and of a black or occasionally a brown colour. The colour is due to the presence of frass, for the larva, on hatching, eats its way out through the flat under-side straight into the substance of

the leaf, packing the shell behind it with its *dejecta*. But the point that concerns us at the present moment is, that in the great majority of cases the moth is by no means indifferent as to where on the leaf she places it. I have noted the matter in 41 different species, in all of which the observations have been many times repeated and on many separate occasions, and in only four of them have I found the position of the egg to be inconstant. Even these four ought perhaps to be reduced to three, if we exclude *salicis*, which is scarcely a true exception. On the rough leaved willows (*Salix cinerea* and *caprea*) it lays on the under-surface of the leaves, but in the smooth leaved species (*S. alba*) on the upper-surface: the reason apparently being, that in the former plants, although the leaves are clothed below with a thick woolly covering, the hairs stand on end, and the moth is able to push her ovipositor between and reach firm ground; whereas in the latter the covering is not only extremely dense, but is also brushed close down upon the surface, and so the upper-side is selected instead, where the hairs are not as thick. In the other 37 some degree or other of choice is shown by the parent insect. It may be merely the selection of one side of the leaf in preference to the other, or the choice may be still more precise and extend to a particular part of it, as the extreme edge, the shelter of a protecting rib on the under side, or the corresponding sulcus on the upper-side. In some cases there is good and sufficient reason for the selection. The larva of *apicella* passes the early part of its life in the stalk of the aspen leaf; the egg must, therefore, be laid upon the stalk, and there it is that we find the empty shell, at the foot of the small swelling produced by the larva. In like manner the egg of *intimella* must be sought for on the stalk of the Bedford willow (*S. Russelliana*), or on the upper-surface of the midrib of the great sallow (*S. caprea*), for this larva also burrows into the stalk or midrib of its food-plant, and only in the latter part of its life extends its mine into the blade. Again, *regiella* and *ignobilella* blotch the lobes of the hawthorn leaves. The mines of both begin as galleries which run along the margin, ensuring by this means the subsequent advance of the blotch inwards, that is, from the margin to the centre, for if it advanced in the opposite direction, then one or other of two misfortunes would be liable to happen; either the larva might reach the end of the lobe prematurely and find its supply of food exhausted, or the flow of sap might be so cut off, that the end of the lobe would wither and die, and the larva run the risk, as before, of perishing of starvation. Hence their instinct leads them to start the body of their mines from the edge. The eggs of both are laid on the

under-side of the lobes, but whilst that of *regiella* is placed immediately under the edge, that of *ignobilella* is well away from it, and, as often as not, quite in the middle. Now there is good reason for the extra precision on the part of *regiella*. Its gallery is short and coarse, and if it did not start true from the first, all its gyrations might fail to carry it to its proper situation, whilst the gallery of *ignobilella*, being fairly long and slender, is sure sooner or later in its course to reach the edge and give the larva the necessary knowledge of its whereabouts.

Very commonly, however, no explanation for the position of the egg is possible, beyond the simple statement that it is the nature of the insect to place it where she does. For example, one species will lay on the upper-side, and another, for no apparent cause, on the under-side of the same kind of leaf, and yet each will cling exclusively to its own habit, as if it were a matter of vital importance. Now and then, of course, an egg will be found out of place, but it is really surprising how seldom such a mistake occurs, and there are many species in which I have not yet seen it happen. Consequently, as a character, the position of the egg is quite as reliable as many another on which the naturalist has learnt to depend. Let me give an instance or two, where this may be the only, or at any rate the most important quality at our disposal. The first part of the mine of *æneofasciella* is a very long and slender gallery, just like, in fact, the mine of *aurella*; the larvæ too are very similar. At this early stage, therefore, a mine of *aurella* in a leaf of agrimony (and such an occurrence, as has already been stated, is by no means uncommon) could not well be distinguished from that of the more legitimate occupant, if it were not for the fact that the egg of *æneofasciella* is always on the under-side of the leaf, and that of *aurella* as invariably on the upper-side. It may be as well to say that the kind of leaf seems to make no difference to *aurella*, and whether it be bramble, strawberry or any other, the moth always lays upon the upper-side. *Pygmælla* and *gratiosella* are both fond, but especially the latter, of laying on the narrow leafy frill that edges the stalk of the hawthorn leaf. Both mines on reaching the blade keep along the edge, and are occasionally so alike in every way that, if empty, nothing but the position of the egg could enable one to say which was which. If, however, the egg should be on the upper-surface of the frill, the mine can be confidently referred to *pygmælla*, and as confidently to *gratiosella* if on the under-surface.

(To be continued).

*CONCHYLIS DEGNEYANA*, McL.: AN ENIGMA.

BY THE RIGHT HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &amp;c.

Has this species an *alias* like Mr. Hyde, or a *double* like the hero of the Lyons mail?

Specimens apparently undistinguishable from each other have certainly been bred from larvæ feeding in two widely distinct plants. Mr. Warren, who has bred it from seeds, and possibly flowers, of *Linaria vulgaris*, describes the larva as pale yellow, and as burrowing into the ground to pupate, although he mentions a single specimen which must have become a "pupa in a flower-head." He made these observations following the line indicated by Mr. Barrett, who recorded (Ent. Mo. Mag., XI, 195) that Mr. Bree had bred the species a good many years ago from the seeds of this plant; but Mr. Barrett himself has always met with it among *Plantago lanceolata*, and had expressed his conviction in 1870 that this would prove to be its food-plant, although he failed to find the larva. From my observations of the habits of the species I had always shared this conviction, and was much surprised at Warren's confirmation of Bree's original discovery, for wherever I have found it most abundant *Plantago* has been the prevailing plant, and *Linaria* in many cases has been wholly absent.

Finding a small larva feeding in the seed-head of *Plantago lanceolata* on the 9th July, 1889, I gathered several heads, and from these a single specimen was bred on the 20th (the empty pupa case protruding from the extremity of the seed-head), on the same day I made another expedition to the place, and collecting more of the seed-heads, bred one specimen on the 4th August and two on the 5th. Another batch of larvæ was accidentally destroyed before I was able to carry out my intention of describing it, and the species having disappeared from that locality, all further search has been fruitless.

It is thus certain that there are two larvæ with different habits, the one on *Linaria* habitually descending to the ground to pupate, the other on *Plantago* pupating in the seed-heads.

In this neighbourhood the perfect insect can be relied upon to appear within three years after any piece of heath or cultivated land on the light sandy soil has been broken up and enclosed, whether planted with trees or left uncultivated. It continues to frequent such places for three years or more, but disappears when the vegetation becomes thicker, even before the *Plantago* has been completely smothered out. It flies only *just* before sunset, and there are certainly two distinct broods, roughly speaking, one the first week in June, the other the first week in August.



I have met with specimens which I could not separate as belonging to any distinct species among patches of *Linaria*, as well as at a distance from any *Linaria*, but whenever I have found it among *Linaria*, *Plantago* has always been present in some abundance. I should add that in every year I am able to meet with one or two straggling specimens, although it never occurs in abundance except in such freshly enclosed places as I have mentioned—the only exception to this rule was one occasion on which I took about twenty specimens of the first brood on the allotments at Brandon, where *Linaria* certainly predominates.

The following list of references may be useful, as the species, although described in 1869, was omitted from Staudinger and Wocke's Catalogue:—

881 (bis)—DEGREYANA, McL.

*Eupæcilia degreyana* McL. Ent. Ann. 1869. 91—92 1; Brt. Ent. Mo. Mag. V. 245. (1869) 2; VII. 158—9. (1870) 3; Tr. Nfk. & Norw. Nat. Soc. I. Sppl. 61. (1874) 4; Ent. Mo. Mag. XI. 195. (1875) 5; in Mason's Hist. Norfolk. App. xxxvi (1884) 6; Tr. Nfk. & Norw. Nat. Soc. III. 698. (1884) 7; Wrn. Ent. Mo. Mag. XXIV. 134. (1887) 8; Brt. Tr. Nfk. & Norw. Nat. Soc. IV. 700. (1889) 9.

*Larva*—in sem. *Linaria vulgaris* 5 8, *Plantago lanceolata* (Wlsm), VII (Wlsm), VIII 8, IX 8.

*Imago*—V 3, VI 3, VII 3, VIII 3, IX 8.

*Hab.*—ENGLAND—Wicken Fen 1, Thetford 1, Norwich 3, Merton 4, Brandon 4, Croxton 7, Denton 9.

Merton Hall: *August*, 1893.

#### A CONJECTURE AS TO THE ORIGIN OF THE NAME *EUPÆCILIA ANTHEMIDANA*, CURTIS.

BY JOHN HARTLEY DURRANT, F.E.S., MEMB. SOC. ENT. DE FRANCE.

Curtis, Pr. Ent. Soc. Lond. (N. S.), III, 43—4 (1855), states that he collected the flower-heads of *Anthemis cotula* at Ryde, Isle of Wight, on the 10th of August (presumably 1855), and from these he bred several insects belonging to different Orders. One of his notes runs as follows:—"On the 22nd of September from the same heads I found hatched in the box *Cochylis subroseana*, Haw. 1."

Wilkinson, Br. Tortr., 309—10 (1859), under the heading "*Eupæcilia anthemidana*, Curtis," writes—"An uncommon species; first noticed by Mr. John Curtis, who bred it from larvæ feeding in the flower-heads of *Anthemis cotula*. It is smaller than *Eup. nana*, but in colours and markings more resembles *Eup. subroseana*."

I think the deduction to be made from these two extracts is that —

(1). Curtis bred a species of *Conchylis* from the flower-heads of *Anthemis cotula*, which at the time he recorded as *Cochylis subroseana*, Haw.

(2). That afterwards he regarded it as distinct from that species, and applied to it the MS. name of *anthemidana*.

(3). That Wilkinson described, under the name of *anthemidana*, Curtis, the species which Curtis, in the first instance, called *subroseana*, Hw., for he distinctly states that it was first noticed by Curtis, who bred it from the flower-heads of *Anthemis cotula*, and that in colour and markings it resembles *Eup. subroseana*.

I have been unable to find a reference by Curtis to any species under the name *anthemidana*, nor is this name to be found in his cabinet, which is at Melbourne.

Merton Hall: *August*, 1893.

#### ON A NEW GENUS ALLIED TO *HERCYNIA*.

BY G. T. BETHUNE-BAKER, F.L.S.

A few years ago, when going through the genus *Hercyna*, my friend Dr. Staudinger sent me a couple of species of a new genus allied thereto, taken at about 8,000 to 10,000 ft. altitude in the mountains of Shah Kuh, N. Persia; want of leisure and other causes have delayed my describing these before. The species are closely allied to *Hercyna*, but are scarcely more than half their size, and lack the shiny appearance so conspicuous in the former.

#### *HERCYNELLA*, *nov. gen.*

Head rough, face rounded, ocelli distinct, tongue developed. Labial palpi moderately long, carried obliquely, end joint almost horizontal, thickly clothed with hairs. Maxillary palpi very small indeed, ending in a very fine brush of hairs from end of apex. Antennæ, two-thirds, simple in both sexes. Abdomen moderately stout. Fore-wings widening but little towards the posterior margin. Hind-wings small. Fringes long.

#### *HERCYNELLA* *STAUDINGERI*, *n. sp.*

Fore-wings pale brownish-ochreous, with two dark, umber-brown, oblique, interrupted stripes, the first line from near the base on the costa extends to a point about one-third along the inner margin, the posterior stripe, much interrupted, makes a small angle from the costa towards the posterior margin, and then recedes somewhat towards the base. The discoidal cell terminates in a dark umber long spot; a

dark umber spot also occupies the centre of the same cell. Fringes long, same hue as wings; posterior margin darkly dotted, in the ♂ there is a line of dark shading just in front of this margin, that is absent in the ♀. Posterior-wings dark greyish-brown, with long, somewhat paler, fringes. Length, 13 mm.

Three specimens from the Shah Kuh mountains, 8,000 to 10,000 feet high.

*HERCYNELLA MARGELANA*, *n. sp.*

Fore-wings dirty ash-grey. with a black curved stripe between the base of the wing and the centre, but rather nearer the latter; a black spot near the costa beyond the centre, followed by an oblique, curved, black stripe from the costa to the inner margin, just beyond a small black dash near the anal angle. Hind margin darkly dotted; the extreme base of the wings is also blackish. The whole of the wing is covered with rough, dark grey scales, which, in fresh specimens, are much lighter in colour just in front of the posterior stripe, appearing as a paler band across the wing. Fringes grey. Hind-wings brownish-grey, with a line of dark shading near the posterior margin, which (margin) is finely bordered with black. Fringes pale grey, with a dark dividing line. Length, 12½ to 13½ mm.

From Shah Kuh mountains, 8,000 to 10,000 feet high.

This genus is very closely allied to *Hercyna*, but the pattern of colouring is quite different; the insects are (both species) only about half the size of the species of that genus, they have none of the lustrous appearance of the former, being rather of a dull rough surface than otherwise, and the maxillary palpi are quite minute. The palpi are also very stiffly and closely haired up to the end of the second joint, and the antennæ are not ciliated.

Edgbaston, Birmingham :  
July, 1893.

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OBSERVATIONS ON *COCCIDÆ* (No. 6).

BY R. NEWSTEAD, F.E.S.,  
CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

*LECANOPSIS*, Targioni-Tozzetti.

This genus was established by Targioni-Tozzetti to receive his *L. rhizophila*. Subsequently Signoret (Essai, p. 285) included in it *Porphyrophora radicum-graminis*, Bärensprung, and *Coccus radicum-graminis*, Fonscolombe; both, however, doubtfully.

The chief generic characters given are—"Margin wide, with a deep anal cleft; anal lobes obtuse, approximate; antenna short, conical, of six joints; mentum ('Os') narrow; legs short, stout; tibiæ truncate and anteriorly grooved; tarsi ovate, acute."

Although the species described below has eight joints to the

antennæ, I have not the least hesitation in placing it in this genus. The characters of the genus must, therefore, be extended to include species having eight joints to the antennæ; a very common variation of character in the ♀ *Lecaniidæ*.

*LECANOPSIS FORMICARUM, n. sp.*

♀ adult, naked, dusky yellow or reddish-yellow, with two broad interrupted subdorsal stripes, meeting at the anal dorsal lobes, disappearing on the thoracic segment, but appearing again near the margin in front as two distinct spots, which might easily be mistaken for eyes. Form elongate, narrowed in front from the middle; eyes very small, nearly black, situate on the margins, anterior of the two spots; antennæ (fig. 1) of eight tapering joints—1st very wide, with a blunt spine at apex beneath; 2nd as long as the 1st; the rest in length about equal, all with a few hairs; 8th with several at apex; rostrum uniarticulate, short, obtuse, furnished at apex with three hairs, and on either side at base with one; unexpanded filaments very little longer than rostrum; legs (fig. 2) long and stout, about three times the length of the



fig. 1

antennæ; femur suddenly pointed at apex, and apparently grooved, attached to the groove is a delicate connective membrane, which extends to the tibiæ; tarsi short, less than half the length of the tibiæ, with the faintest trace of a groove at apex (fig. 3); trochanter with one long and one short hair; digitules to tarsi and claw ordinary; dermis with many circular discs surmounted with short, stiff spines; parts of the surface rugose; the rugosities viewed dorsally beautifully labyrinthiform—a very unusual character. Anal dorsal lobes large, angular, each furnished at apex with a delicate spine. Anal ring without hairs? (of this I cannot be quite certain). Anal cleft deep.



fig. 2.



fig. 3.

Long., 5—5½ mm.; wide, 2—2½ mm.

*Hab.*: in nest of *Formica nigra*, at Chesil Beach. Received from Mr. C. W. Dale, April 15th.

Mr. Dale was only able to find two specimens, although, at my suggestion, he searched a second time for them. He remarks—"I have seen similar insects in the nests of *F. flava* and *F. congerens* before now, but mistook them for larvæ of beetles." Its colour pattern is very like that of *Signoretia luzula*, L. Dufour, and it is one of the largest of our British *Coccids*, and a clearly distinct species.

May 11th, 1893.

[P.S.—My note (*ante* p. 138) has brought to light some interesting material. Mr. C. W. Dale looked in vain for a further supply of *Lecanopsis formicarum*; but at my suggestion, however, he kindly forwarded a specimen of what he recorded in this Magazine as *Ripersia Tomlinii*, Newst. (vol. xxviii, p. 219), which, after treatment with potash, proved identical with the above; the specimen only differing from the types in having a few long white filaments on the dorsal surface of the last four or five segments. These seem to suggest the formation of a sac, but I fail to obtain further evidence that such is the case. By almost the same post that brought Mr. Dale's specimen I received several specimens of a large *Coccid* from Mr. Luff, of Guernsey, which he had found under stones in ants' nests. These were each enclosed in a sac of thick white felting, except at the cephalic extremity, where the body of the ♀ closes it, as in *Signoretia*, *Eriopeltis*, and *Lichtensia*, but drops out after laying its eggs. I at first thought that Mr. Luff's specimens were a more advanced stage of the *Lecanopsis*, but I have no conclusive proof that they are. The antennæ of Mr. Luff's specimens are eight-jointed as in the above, but they are very different in structure: the latter are like those of a *Lecanium*, those of the *Lecanopsis* most like those of a *Monophlebid*. For the present I am inclined to think Mr. Luff's specimens are referable to Giard's *Spermococcus fullax* (Bulet. Ent. Soc. France, 10 Mai, 1893), of which I will give a more detailed account later. I can only add how very grateful I am to Messrs. Dale and Luff for the trouble they have taken in searching for the specimens.—July 22nd, 1893].

## PHYSOKERMES (Targioni-Tozzetti), Signoret.

### PHYSOKERMES ABIETIS.

*Chermes abietis rotundus*, Geoffroy, Hist. abreg. Ins. (1764), ii, 507, 7.

*Coccus abietis*, Mod., Göttheb. Vetens. Handl. (1778), i, 27, 20; Gmel., Syst. Nat., i, 2221, 32 (1791).

*Lecanium abietis*, Signoret, Ess. Cochen., 273, 50.

*Coccus piceæ*, Schr., Fauna Boica (1801), 146, 1271; Boisduval, Entom. Hort. (1867), 320.

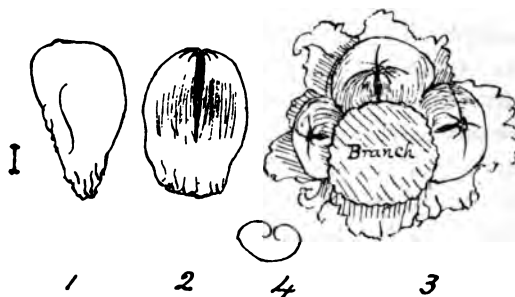
*Coccus hemicyphus*, Dalm., K. Vet. Acad. Handl. för 1825, p. 369, 6, tab. iv, figs. 18—27. *Physokermes hemicyphus*, Sign., Ess. Cochen., p. 280, pl. xiii, figs. i—ic.

*Coccus (Lecanium) racemosus*, Ratz., Stett. Ent. Zeit., iv, 204; Forstins., iii, 191, 1.

*Lecanium racemosum*, Goureau, Ins. nuis., 159. Signoret, Ess. Cochen., 275, 52, pl. xii, fig. 16.

♀ adult, dark, or light reddish-brown; parasitized specimens generally much paler; form very variable, and according to position on the food-plant; generally of

the form shown in the fig. 1 profile, 2 ventral, and 3 anal dorsal and ventral view; this form is found only beneath the bud-scales of the spruce fir, but when the scales are in exposed situations on the twigs, they are always more or less globular or spherical, and exactly like a small *Kermes*; but there is every form intermediate between the above, yet, as previously stated, the form shown in the illustration is by



far the most common. Of whatever form, however, that portion of the insect which is attached to the branch, or hidden behind the bud-scale, whether dorsal or ventral, is always very uneven, and fits exactly into the uneven surface on which it rests, or which covers it.

The form which locates itself behind the bud-scales always has the anal portion of the body exposed, as shown in the fig. 3 (three ♀); sometimes as many as five or six females are arranged round the stem of a single one-year-old branch of the fir. In all cases the exposed portions of their bodies are smooth and shiny, except in very old examples, which become almost covered in resin from the fir tree; extending from the anus on the ventral surface to a little beyond the middle is a long deep slit, formed by the folding inwards of the ventral skin; a diagrammatic section at this portion of the body is shown at fig. 4; the extent of this slit is not easy to trace, owing to the brittle nature of the scale, but it is always clear and wide at the anal extremity; at this place on either side is a conspicuous blunt "cornicle," and immediately above on the dorsal surface are the true anal dorsal lobes, which, from their rounded ends, appear as two minute cornicles; extending from each of the large ventral cornicles is a straight deep fovea, which extends along the ventral surface parallel with the "slit," forming long rounded carinæ; radiating from the anal dorsal lobes are three short and generally well defined striæ, one dorsal and one subdorsal, but they are rarely seen in parasitized specimens, owing to the swollen nature of the dermis. Rostrum unarticulate; legs and antennæ wanting; dermis finely reticulated with an irregular honeycomb-like tessellation and numerous large clear circular cells.

Long.,  $2\frac{1}{2}$ — $4\frac{1}{2}$  mm.

♀ second stage: pale reddish-brown, or pink, exactly corresponding to the colour of the bark on which it rests; this, together with the small size, render the scales very difficult to be seen; their shape and outline is almost exactly like a young *Lecanium* of the *hesperidum* type; long-oval, widest at thoracic segment; margin in front nearly straight, with many stiff hairs; legs and antennæ present; caudal scales small, and duller than the rest of the body. They are always fixed head downwards.

♂ unknown to me in any stage, although I have searched most carefully for them since the year 1891. Ratzeburg (*l.c.*), however, figures and describes it; and, with the exception of the antennæ, it does not appreciably differ from the ♂ of an ordinary *Lecanium*. The number of joints to the antennæ are given as nine, but this, as Signoret states (p. 276), must be an error.

*Larva*: this is well described and figured by Signoret (*l.c.*). They appear in July, and almost directly after hatching locate themselves behind the bud-scales at the base of the young, tender, growing shoot of the spruce; here they fix themselves head downwards, and pass the winter without materially altering in form.

*Hab.*: in spruce fir (*Abies excelsa*).

First taken July 4th, 1891, at Delamere Forest, Cheshire, where it is very common on some of the trees, so abundant, that I venture to say it must be injurious. As examples of protective resemblance, I know of none more interesting; they are so much like an unopened bud of the spruce fir, that it is difficult to detect them at first sight. They are terribly subject to the attacks of a *Chalcid*? parasite, which hatches at the same time as the larvæ, and I imagine that the latter are parasitized before they fix themselves behind the bud-scales, &c., for they would not be accessible afterwards, except in the adult stage, when they are not attacked.

As to the synonymy of the species:—

Geoffroy (*l.c.*) says—"It is quite circular and spherical. Its colour is shaded chestnut-brown. It is found on the branches of spruce firs, chiefly towards their bifurcations."

This exactly applies to the form described above, and which I find near the bifurcations of the small branches; such forms I take it are the normal ones, as there is nothing in the way to arrest the natural development, except parasites, and these would tend to make the scale more spherical, and not depressed or cut off.

Gmelin (*l.c.*) only refers to Geoffroy as above, and to Modeer. No description, only "Hab. in spruce fir. Chestnut-brown."

Schrauk (*l.c.*) states that it "lives among the needles of the pines (*Fichte*). Boat-shaped, or more distinctly of the form of an egg cut so that it presents the larger axis parallel, without silky matter, light brown, paler at the end."

So far as the description is concerned, it agrees very well with the specimens of the commoner form which I find at the base of the spruce fir leaves, and beneath the "bud-scales." I presume that "*Fichte*" is the spruce fir. The term "boat-shaped" I imagine applies to external characters alone, *i. e.*, the characters of the dorsal surface.

As to the *hemicyphus* of Dalman, the description of it given by Signoret (*l.c.*), p. 280, agrees with my specimens, but more especially with those which are found in exposed situations on the branches.

There is one exception, however. I do not find the regular corrugations or carinæ shown in Signoret's fig. 1, ventral view, but I do not attach much importance to this. The figs. of the ♀ are copies of

Dalman's, those of the larva Signoret's. The descriptions and fig. of the latter in every way agree with my specimens, indeed, the larva might have been figured from them so exactly alike are they. Of the ♀, however, Signoret only had one specimen, from which his description was made. Had he have seen the various forms that I have, I venture to state that he would have adopted the same synonymy.

Ratzeburg's description and figs. (*l.c.*) with few exceptions undoubtedly agree with mine, which I have no hesitation in saying are really identical with Ratzeburg's. His fig. 8 F of the *under-side* of the adult ♀ is, however, very mechanical and misleading. The six large cornicles shown on the *ventral* surface at the anterior extremity cannot be more than accidental protuberances produced by the inequalities of the food-plant; for this and the corresponding dorsal portion fits very closely between the bud-scales and the branch, as stated above, and as clearly illustrated by Ratzeburg's fig. 8 X F E. The bud-scales, however, are very scantily shown; generally much more of the insect is hidden beneath them, which is of importance as affecting the shape of the insect. The very prominent rostrum between the cornicles, bearing the filaments, is also undoubtedly exaggerated. But the long, broad, ventral carinæ near the anus, producing the "blunt cornicles" at the extremity and the long ventral slit between them are exactly what I find in all my specimens. His fig. 8 P of the larva compares exactly with my specimens, and, moreover, it also agrees with Signoret's fig. of the larva of *Phy. hemicryphus*, Dalm.

Signoret's figure of Ratzeburg's *C. racemosus* is undoubtedly a reduced copy of that author's, and is very misleading, in that he has left out the long and very characteristic ventral slit which is of the greatest importance (Essai, p. 278, pl. xii, fig. 16). I had always looked upon Signoret's fig. as showing the dorsal aspect of the ♀, for which it may well pass, and undoubtedly has passed. Signoret, at p. 275, gives an abridged description of the species, and states it might possibly be the *L. abietis*, Geoff. Later, at p. 282, he states that he does not know the species, and is doubtful as to its position, and says that he has provisionally placed it in the genus *Lecanium*, and then again refers it to the *abietis* of Geoffroy.

I am very greatly obliged to Mr. J. W. Douglas for the valued assistance he has rendered in the synonymy of the species; without his help this portion would have been left untouched.

This very interesting species is an addition to our fauna.

Chester: May 17th, 1893.



*Colias Hyale*, &c., in the Isle of Sheppey.—It is with much pleasure that I record the occurrence, in fair numbers, of *Colias Hyale* in this locality. I first noticed the butterfly on the 12th, in a lucerne field within half a mile of Sheerness; subsequent visits to this and other fields close at hand have produced a beautiful series, though as yet the insect cannot be called abundant, half a dozen examples representing the result of a good hard forenoon's work. So far the males have appeared in much the greater number, only three or four females having been taken. Nearly all are in very fine and fresh condition, many having the appearance of being just out of the chrysalis. The great year for this species in the Isle of Sheppey (as elsewhere) was 1868, when it might fairly have been said to swarm in the lucerne fields in August; in 1872 it appeared here in moderate numbers, and since that year, with the exception of a solitary example taken in the Isle of Portland in 1885 (*Ent. Mo. Mag.*, vol. xxii, p. 111), I have not seen it alive in England. I understand, however, that four specimens were taken in this Island last year by a local collector.

*Colias Edusa* has not yet made its appearance here this season, though on July 15th I saw two worn-looking specimens on the railway bank between Exeter and Salisbury, when I was travelling from Devonport to London. Most of the ordinary butterflies seem fairly plentiful here this season (especially *Pararge Megera*, *Chrysophanus Phlaeas*, and *Lycæna Icarus*), but *Pyrameis cardui* is decidedly much scarcer than usual. *Hesperia lineola* was very common at the end of July on the rough, grassy sea wall at Elmley, and even more abundant on the face of our cliffs, where its better known congener, *H. Thaumias*, is found with it in comparatively scanty numbers, the relative proportion of the two species being, I should say, about ten *lineola* to one *Thaumias*. The flight of both species is quite over now.—JAMES J. WALKER, 23, Ranelagh Road, Sheerness: August 17th, 1893.

*Colias Edusa* in Co. Mayo.—On July 7th, near Westport, a fine ♂ *Colias Edusa* crossed the road in front of me and settled in an adjoining field. It seemed to be freshly out, but was the only one I saw.—C. W. WATTS, Belfast: July, 1893.

Second brood of *Thanaos Tages*.—On Monday, August 7th, *T. Tages* was abundant on the hills east of Ashford, and to the west also many specimens were seen. Of late years my time for collecting butterflies has been very limited, and I cannot be sure whether a second brood is the rule or the exception. I do not think it is so abundant as the first.—CHARLES VIGGERS, 36, Hardinge Road, Ashford, Kent: August 9th, 1893.

Second broods in 1893.—Being at Brighton on July 15th, I took a walk to Bevendean, and was rather surprised to find the second brood of *Lycæna Adonis* on the wing, although I did not see many; *L. Alexis* was in great numbers, with a few *L. Agestis*, which has been very abundant, as a second brood, at Reading, where I first noted it on July 1st; *L. Corydon* was also well represented; *Polyommatus Phlaeas* very common, and it seems so everywhere this season. *Hesperia sylvanus* was out here and at Basingstoke this year early in May, and when I was at Basingstoke at Whitsuntide it was practically over. I did not notice it again until July 2nd, when specimens were beautifully fresh, and on July 9th it was plentiful and in fine order. I think that this was a second brood. I have a note that in 1888 it was

out in the last week of July with *H. comma*, so a second brood is not improbable in a season like the present. — A. H. HAMM, 24, Hatherley Road, Reading: July 24th, 1893.

*Macroglossa stellatarum*.—This species has been unusually abundant here this season, for on visiting a favourite spot for it I found them flying in profusion to the flowers of the viper's buglos (*Echium vulgare*), and you only had to watch a patch to secure a good series; it is many years since they have been taken here in any abundance, and then in nothing like the numbers this season. I have since taken the larvæ on both *Galium mollugo* and *G. verum*, and they were to be found in all stages at one time. Some few years ago I also found it feeding on *G. palustre*. —ID.

*Zygæna trifolii*.—In a recent number I called attention to the discovery by Mr. W. H. B. Fletcher of the curious habits in larvæ of *Zygæna trifolii*, of passing more than one winter in that state. Mr. C. A. Briggs draws my attention to a similar and prior observation by his brother, Mr. T. H. Briggs, recorded in the Proceedings of the Entomological Society for 1875. This was, undoubtedly, an oversight on my part. —CHAS. G. BARRETT, Nunhead, S.E.: August 18th, 1893.

*Lepidoptera at Wicken Fen and Hunstanton*.—June 14th to 22nd last I spent at Wicken working the Fen and adjoining lane. *Lepidoptera* were fairly plentiful, but there were only two really good nights at "light," those of the 14th and 17th. On the former of these I took ten *Nascia ciliatis*, and on the 17th fifteen more, besides missing several. Other visitors included *Macrogaster arundinis*, *Ptilodontis palpina*, *Notodonta ziczac*, *Simyra venosa*, *Leucania pudorina* in plenty, *Hydrælia unca*, *Plusia festuca*, *Chilo mucronellus*, with *Herminia cribralis* and *Chilo phragmitellus* in plenty. Sugar was more attractive than appears to have been the case in many parts of the country, as on most evenings a fair haul was made. Of "takeable" species, *Aplecta advena* and *Leucania pudorina* took the lead in point of numbers, both being very plentiful; their companions were *Thyatira derasa*, *Acronycta megacephala*, *Leucania conigera*, *L. comma*, *Xylophasia hepatica*, *Mamestra anceps* plentiful, *Apamea gemina* abundant and variable, *Agrotis puta*, *A. ravida* taken the first night and several afterwards, an unusually early time for the species, *Hadena adusta*, *Boarmia repandata* a fine form, *Timandra amataria* common, and very many other species, including a big ♀ *Cossus ligniperda* flying about a sugared tree trunk. A notable absentee was *Apamea unanimis*, which is sometimes the most abundant *Noctua* at Wicken in June; I have seen all the sugared patches covered with them, probably thousands in a night, whereas this year not one was to be seen! Nothing on and about the Fen produced *Collix sparsata*, *Herminia cribralis* and *Epione apiciaria* all in abundance, with *Nola cucullatella*, *Hemithea thymiaria*, *Acidalia immutata* and several others of the genus; *Eupithecia subumbrata*, *Lobophora sexalisata*, *Scotosia vetulata*, *S. rhamnata*, *Paraponyx stratiotalis*, *Nemophora metaxella*, *Anesychia funerella*, and many others. Larvæ of *Papilio Machaon*, about half to two-thirds grown, were feeding on the *Peucedanum*. One afternoon was spent on Chippenham Fen, where the pretty *Bankia argentula* was out in plenty, but little else was noted there. On the 22nd I went forward to Hunstanton for a

couple of days, and was very pleased to find that *Eupithecia extensaria* still held its own well on the same ditch where I took the larvæ so freely in 1889; several females I beat out of the *Artemisia maritima* deposited eggs, from which I have now a nice lot of larvæ feeding.—Geo. T. PORRITT, Huddersfield: *August 8th*, 1893.

*Acherontia Atropos* in a bee-hive.—On June 11th of this year a fine specimen of *A. Atropos* was seen issuing from a bee-hive belonging to Mr. John Waterfield of Kibworth. It was covered with bees which were pushing it out at the entrance, and endeavouring to kill it. Apparently it had been stung, for it seemed unable to fly, yet made a loud squeaking noise as if in self defence. I have seen the specimen and can vouch for the veracity of my informant.—C. T. CRUTTWELL, Kibworth Rectory, Leicester: *July 21st*, 1893.

[That *Acherontia Atropos* enters hives has long been notorious. It sometimes happens that the bees cannot eject the intruder, and dispose of its body by entombing it in wax.—Eds.].

*Variety of the larva of Acherontia Atropos*.—On the 14th of this month, a handsome dark variety of the larva of the "death's head" was brought to me from our village, where it had been found on *Lycium barbarum*, the "tea-tree." It was well-grown in its last skin, and in general appearance and pattern resembled the variety figured in Buckler's "*Larvæ of the British Butterflies and Moths*," vol. ii, plate xxi, fig. 1a, but differed from it somewhat in intensity of markings, and more decidedly in having (1) the white on the first few segments beautifully tinged with pink; (2) the rest of the body entirely brown (of various shades), with no trace of red in it; and (3) the horn of the colour of ivory, instead of brown, as in the figure. Three other larvæ of *A. Atropos* occurred on *Lycium barbarum* in the same spot, but they were all of the usual type; one of them was unfortunate enough to catch the eye of an old woman, who, feeling sure that it must be "a locust," placed it on the ground, and threw a brick on the top of it! It may be added that the variety figured by Mr. Buckler was found feeding on *Solanum dulcamara*.—EUSTACE R. BANKES, The Rectory, Corfe Castle: *July 24th*, 1893.

*Gelechia (Lita) strelitzella* not a British insect.—In the Ent. Ann. for 1872, p. 123, this species was recorded as new to Britain by the late Mr. H. T. Stainton, who there says, "The Rev. E. N. Bloomfield met with two specimens of this insect at Lowestoft, July 28th, 1871, beating them from marram (*Ammophila arundinacea*)." While at Mountsfield, and engaged in looking over some of Mr. Stainton's British *Gelechia*, on May 4th, 1892—the last occasion on which I had the pleasure of seeing him—I caught sight of a single moth, bearing a label in his well-known handwriting:—"E. A., /72, p. 123. Lowestoft, 22.7.71. Bloomfield, 5/73. *Strelitzella*, H.-S.," which I at once recognised as a fine example of *Gelechia celerella*, Doug. Mr. Stainton, however, could not entertain any doubt about its identity, so the matter was dropped. But on my writing this year to ask the Rev. E. N. Bloomfield for the loan of the other specimen that he took at the same time (Ent. Ann., l. c.), he informed me that he had been in error (and had, in his "*Lepidoptera of Suffolk*," subsequently corrected the mistake) in thinking that it was identical with that which he had sent to Mr. Stainton, and that, in consequence, the claim of *strelit-*

*ziella* to a place in the British list rested solely and entirely on the single moth in Mr. Stainton's cabinet. Having again examined it just recently, I can confidently state that it is a genuine *G. celerella*, Doug., and quite distinct from the true *strelitzella*, H.-S., of which there is a beautiful series in the Stainton collection of continental *Tineina*. As *Lita strelitzella* seems never to have occurred in Britain, the name must now disappear from our lists. Lord Walsingham fully agrees with me in the matter.—ID.: *July 25th*, 1893.

*Note on Hesperia Actæon*.—As Mr. C. W. Dale, on p. 164 of the current volume of this Magazine, refers to "the second brood" of *H. Actæon*, it would be very interesting to know if there is any proof of the existence of a second brood in this country. As my whole life (with the exception of the intervals due to temporary absence from home) has been spent within a five minutes' walk of one of the haunts of the "Lulworth Skipper," and in the very centre of the best district for it, I can claim a very close acquaintance with it; and yet, although I have taken it on May 31st (and know that it was out several days earlier!) in an exceptionally early year (1893) and locality, as well as on September 8th in a very backward season (1888) and later spot, all my experience tends to show that there is *only one* long brood. If there are two, it is strange that there is no diminution of their numbers in the middle of the summer, still more strange that neither I, nor any one else whom I know, can, in spite of repeated efforts, find any trace whatever of the larvæ of the second brood, although those of the first brood may be collected freely, and of very various sizes, at any time in the latter part of the spring and in early summer! The sketch of the life-history as given by Mr. Dale on p. 218 of his "History of our British Butterflies" (recently published as a supplement to the "Young Naturalist"), is rather difficult to follow, for he thinks (1) that there are two broods, one in June the other in August; (2) that from the eggs laid in June the larvæ feed up before winter, and hibernate in the chrysalis state; and (3) that from the eggs laid in July and August the larvæ hibernate small, feed up in spring, being full-fed in the middle or end of June, and remain about a fortnight in the chrysalis state. But, if the *June* eggs produce butterflies in the following June, and the *July and August* eggs appear as imagines in the first half of the following July, how can there be any second brood, and what is the history of the *August* butterflies? I cannot believe that with us the species ever "hibernates in the chrysalis state," and know of no facts that support the idea of the larvæ hibernating as such.

As regards the food of the larvæ, in his "History of our British Butterflies," Mr. Dale, while naming three other grasses, makes no mention of *Brachypodium pinnatum*, which is the *one and only known food-plant* of *H. Actæon* in Britain. Those that he gives are (1) *Brachypodium sylvaticum*, but Mr. Buckler's error in at first identifying *B. pinnatum* as its ally was pointed out in Ent. Mo. Mag., vol. xxv, p. 283; (2) *Triticum repens*, upon which Mr. Buckler fed it in confinement; and (3) *Calamagrostis epigejos*, on which Professor Zeller found the larvæ in Austria.—ID.: *July 19th*, 1893.

*The Plague of Wasps*.—From the accounts given in the newspapers it appears that wasps are very numerous in many counties this season, but I should doubt whether they can anywhere be more abundant than in this district. By the end of

July our gardeners had already destroyed 54 nests of ground-wasps in our garden and shrubbery, and in the few fields close around them, and doubtless this number will be largely increased within the next month or so, for the insects seem almost as plentiful and troublesome as ever! In fact, three more nests have already been taken. Our previous "best on record" is a "take" of 21 nests in the course of a single season, though perhaps the search has generally been confined to a rather smaller area. It is impossible to prevent the armies of hungry marauders from helping themselves very liberally to the fruit on the trees, though, fortunately for us, the crop is so exceptionally heavy that there is plenty for all parties concerned. The nests of the tree wasps have also been more common than usual.—ID.: *August 8th*, 1893.

*Lestes nympha*, *Selys*, and other dragon-flies in Cambridgeshire.—While at Thorney, Cambridgeshire, for a fortnight in the middle of July, I paid special attention to the dragon-flies of the district. As my captures include one species of some interest, a list of them is given here. The locality should be a very good one for this group, but circumstances were rather adverse during my stay; the fine weather broke up just before my arrival and gave place to rather sunless and windy days. Some of the common species of *Agrionidae* abounded, but the larger dragon-flies were not numerous. The dykes of Knarr Fen were most productive, both as regards species and individuals. The list is as follows:—*Sympetrum sanguineum*, Müller, frequent at one of the Knarr Fen dykes; seen occasionally elsewhere (with the exception of *Æ. grandis*, this was the only one of the larger dragon-flies seen at Wicken the one day I spent there). *S. scoticum*, Donovan., two at Knarr Fen. *Libellula quadrimaculata*, L., a few taken at Knarr Fen. *Æschna grandis*, L., generally distributed, but not very common; a few specimens of another *Æschna*, probably *cyanea*, were seen but not taken. *Calopteryx splendens*, Harris, Thorney Dyke. *Lestes nympha*, Selys, only one of this interesting species, of which little appears to have been seen of recent years; I now believe it occurred in limited numbers at one of the Knarr Fen Dykes along with *L. sponsa*, but at the time I did not appreciate the differences between the two. *L. sponsa*, Hans., everywhere common. *Ischnura elegans*, V. d. Lind., common. *Enallagma cyathigerum*, Charp., common, Thorney River. *Agrion pulchellum*, V. d. Lind., very abundant. *A. puella*, L., not common. *Erythromma najas*, Hans., a few noticed at one restricted spot on the Thorney River; not seen elsewhere.—K. J. MORTON, Carlisle, N.B.: *August*, 1893.

[I am delighted to find that *Lestes nympha* is still with us. During the last quarter of a century I have examined several hundreds of *L. sponsa*, living and dead, in the hope of finding *nympha* among them, but in vain.—R. McLACHLAN].

*Lema Erichsoni*, Suffr., in Co. Dublin.—During a day's collecting near the village of Santry, Co. Dublin, I captured a large number of specimens of *Lema*; upon examination they all proved to be *Lema lichenis*, with the exception of one, which was evidently referable to the very rare *Lema Erichsoni*, Suffr. Canon Fowler has seen the specimen, and confirmed the identification. I have lately retaken the species in some numbers at the same locality, by sweeping, chiefly in one small grassy place, although a few examples occurred at some distance.—J. N. HALBERT, 13, Nelson Street, Dublin: *August*, 1893.

*Cicindela sylvatica* versus *Panurgus calcaratus*.—Yesterday (August 7th) I was interested in watching a specimen of *Cicindela sylvatica* entirely demolish a ♀ of *Panurgus calcaratus*. I did not see the actual capture, as when I observed the *Cicindela* it had just eaten the posterior segments of its prey's abdomen; it made light work of the other segments, but seemed to find the thorax more trying, whereas for the time it discarded the head altogether, biting it off and leaving it on the ground; when, however, it had duly finished the thorax it returned to the head and quickly devoured that also. The legs of the bee kept up movement for some time after most of the abdomen was removed. The only sign left of the conflict was the bright orange pollen off the bee's legs, which was rejected and left in two little heaps on the sand. The entire meal could not have occupied more than two minutes.—EDWARD SAUNDERS, St. Ann's, Woking: August 8th, 1893.

*Coleopterous notes from Woking, &c.*—The dry hot summer seems to have just suited the larger *Coccinellidæ* (and, perhaps, their food, *Aphides*, as well), for I have met with here, in the vicinity of Woking, or at Fleet, about ten miles distant, sixteen of our larger British species this season. *Hippodamia mutabilis*, by no means a common species in my experience, has been by far the most abundant at Woking, swarming on grass stems and on low plants, in cultivated fields, towards evening in May, but now almost over; it has not been uncommon even in my garden. At Woking I have also noticed *C. 11-punctata*, *7-punctata*, *variabilis*, *bipunctata*, and *14-punctata* (all more or less abundant), and *C. 22-punctata* and *Euxochomus 4-pustulatus* sparingly, in the lanes and meadows; *C. oblongo-guttata* (including a small variety with the oblong pallid spots on the elytra almost obliterated), *ocellata*, and *18-guttata*, more or less common on the pines; and *C. hieroglyphica*, black var., on the heath. At Fleet, *C. obliterata* and *14-guttata* and both *Chilocorus* in their usual habitats. The *Anisotomidæ*, however (some of which were so abundant at Woking last year at this time), are conspicuous by their absence. This I attribute to the very dry weather being unsuitable to the growth of the underground fungi upon which they are supposed to subsist, and perhaps, more particularly, to the frequent forest and heath fires having burnt up a great deal of the undergrowth in the pine woods, &c., so that nothing but charred ground is to be seen in many places. A few local species of other families have occurred during the past month, either to Mr. J. J. Walker or myself, as *Sphindus dubius*, with its larva (not rare), *Aspidophorus orbiculatus*, *Lathridius testaceus*, and *Corticaria obscura* (5) and *rufula*, in powdery fungus on pine stumps; *Byrrhus murinus* and *Syntomium*, in sand pits; *Cassida equestris* on *Mentha*, and *Rhinoncus inconspicuosus* and *subfasciatus* on *Polygonum*, in marshy places.—G. C. CHAMPION, Horsell, Woking: August 14th, 1893.

## Reviews.

THE LIFE OF A BUTTERFLY; a Chapter in Natural History for the general reader: by SAMUEL H. SCUDDER. 12mo, pp. 182, and 4 plates. New York: Henry Holt and Co. 1893.

BRIEF GUIDE TO THE COMMONER BUTTERFLIES OF THE NORTHERN UNITED STATES AND CANADA: by the same Author. 8vo, pp. 206. New York: Henry Holt and Co. 1893.

These two nicely printed and otherwise well got up books externally resemble each other in everything save size, and are issued simultaneously. The first named is evidently intended as introductory, so far as generalities are concerned. Both are additional proofs of the untiring energy of their well-known author.

In the "Life of a Butterfly" we have, of course, an introduction and other Chapters that would answer to almost any species; but the type taken as expository is *Anosia Plexippus*, and when treating more especially on this the author contrives to give, in a short chapter, an account of its extraordinary migrations within the last half century. The Chapter entitled, "A Lesson in Classification," may be read with interest.

In the "Brief Guide" we learn that the author has long had in preparation a Manual of the Butterflies of North America, to which this is a popular prelude so far as regards the restricted geographical area embraced by it. The introductory portion includes a good deal that appears in the "Life," in a modified form, and extended so as to meet the requirements of the subject. There is also a brief historical chapter on the literature of American Butterflies. Then comes a formidable Key to the groups and genera, based on the perfect insects, pupæ and caterpillars. This is followed by a diagnostic and descriptive account of each genus and species, with copious notes, and a glossary. Finally, there is the inevitable "Appendix," with instructions for Collecting, &c., &c.

This second volume is of course mainly of interest to American readers, but, from its method of treatment, it will be useful to European students, and there is a common specific element, slight though it be, in the Butterflies of the two continents. To those who know the author's views on generic and other nomenclature, and his splitting up of the larger genera into a multitude of smaller ones, the nomenclature used in this work will not come as a shock, but we doubt if the "*keenest insight into valuations*" ("Life," p. 137) will ever be taken as more than the result of individual opinion in many instances. This is not a matter of much importance outside the question of needless (?) multiplication of generic terms. We cannot omit an expression of regret that the author should have found (in most cases coined) an English name for each species. Many of these are as absurd, or even more so, than those proposed for our own Butterflies and Moths, and in our case the tendency now is to ignore altogether this childish practice, save in cases where ancient custom has made the names familiar. According to the author, our "Camberwell Beauty" should be styled the "Mourning Cloak!" Is this a question of priority?

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## Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:  
July 27th, 1893. —J. JENNER WEIR, Esq., F.L.S., President, in the Chair.

Mr. A. Robinson exhibited a magnificent series of *Callimorpha Hera*, L., bred from ova obtained from a female captured in Devonshire in August, 1892. He mentioned that among those he bred a large number were deformed in the hindwings, and principally in the left one. Mr. Robinson also had two specimens of *Dicranura bicuspis*, Bork., from Tilgate Forest, one being a very light variety. Mr.

Turner exhibited a fine series of *Pempelia palumbella*, Hb., from Oxshott, also a few *Thera variata*, Schiff., one being almost unicolorous, and *T. firmata*, Hb., &c. Mr. Dennis brought a box of *Thecla betulae*, bred at the end of June, one having the orange band somewhat smaller than usual. Mr. R. Adkin exhibited specimens of *Smerinthus populi*, L., from Lewisham, the New Forest, and Sutherlandshire, for comparison, three of those shown being of that very light brownish form that occasionally occurs, one from each of the localities named; also a few *Smerinthus ocellatus*, L., bred from larvæ found at Lewisham. Mr. Barrett exhibited the larvæ referred to by him at the last meeting, and made some comments thereon. These larvæ, if not actually still alive, were in a state of very fresh preservation, and Mr. Weir said he thought there was hardly any doubt about their having been stored by one of the Mason wasps, as food for its young. Mr. H. Williams exhibited five pupæ of *Leucophasia sinapis*, L., for the purpose of showing the gradual development of the perfect insect, one of which emerged during the course of the evening. The average dates were: ova laid May 26th, hatched June 6th, the first pupating on July 9th. Mr. Step exhibited the following species of galls from Epsom, viz.: *Andricus fecundatrix*, Htg., *Neuroterus lenticularis*, Olivier, *Andricus ostreus*, *Cynips Kollari*, *Rhodites nervosus*, Curt., *E. rosæ*, Htg., and *E. eglanteria*, Htg.

August 10th, 1893.—The President in the Chair.

Mr Frohawk exhibited specimens of *Macroglossa bombyliiformis*, together with a species of humble-bee, which it mimics, captured in company over rhododendrons in the New Forest, on 21st May last. Mr. Jenner Weir exhibited some cases which had been found under a sycamore by a neighbour of his, Mr. Tolhurst, at Beckenham. He said that attention had been called to these cases by seeing them hopping on a gravel walk, a power which they retained for some days. The cases were circular discs, about 13 mm. in diameter, and had been made from the upper cuticle of the sycamore leaf, forming one side, and silk the other. Upon examining the leaves of the tree, the round spots from which the cases were partly formed were plainly visible, and also the large blotch, from which the larva had eaten the parenchyma. It was at first thought that they might belong to a *Tischeria*, but they have since been identified by Mr. McLachlan as being the work of a saw-fly, *Phyllotoma aceris*, Kaltenbach, a species already known in this country; a somewhat detailed life-history was given by C. Healy in the Ent. Mo. Mag., iv, pp. 105—107 (1867), but the most complete is that by Ritzema Bos, in the Tijdschrift voor Entomologie, vol. xxv, pp. 7—16, pl. iii. The President also exhibited nearly adult larvæ of *Hemerophila abruptaria*, and drew attention to the fact that two pairs of prolegs were, as usual in Geometers, fully developed, and that there were also two other imperfect pairs in front of these. He considered these very imperfect prolegs to be vestigial. Mr. Robt. Adkin exhibited a specimen of *Sesia cynipiformis*, bred from pupæ found in Sussex, and called attention to the usual red colouring of the bar, and a portion of the costal streak of the left fore-wing being replaced by yellow; he also exhibited a series of *Spilosoma lubricipeda*, bred from Yorkshire larvæ, in some of which the spots showed a tendency to become elongated. Mr. C. Oldham exhibited series of *Sphinx ligustri*, *Apamea ophiogramma*, *Calymnia affinis*, and other species, chiefly taken at Woodford.—H. WILLIAMS, Hon. Secretary.



REMARKS UPON THE SYNONYMY OF SOME RATHER OBSCURE  
*DIPTERA* IN THE FAMILY *ANTHOMYIIDÆ*, TOGETHER WITH  
 A NOTICE OF SOME UNRECORDED BRITISH SPECIES.

BY R. H. MEADE.

The difficulty of describing small insects accurately, so that one species may be clearly distinguished from another by the description alone, without the aid of figures, is very great; especially among little *Diptera*, which are often very similar, both in structure and appearance. Owing to this difficulty, many species have been named over and over again by different titles by different authors, and the same species has sometimes been described more than once under different names by the same author; thus it becomes almost impossible to clear up the synonymy without reference to the original specimens preserved in different museums.

I have been induced to make these remarks by the perusal of a very interesting paper by Herr V. P. Stein upon the types of some of the *Anthomyiidae*, in the collections of Fallén and Zetterstedt, which he has carefully examined in the Museum at Lund.\* By these researches Stein has been able to clear up some difficult points, and enable Dipterists to decide upon the true or original names of several disputed species. I must refer those who are much interested in the subject to Stein's paper itself, as I only wish to draw attention to a few species, the original names of which were a source of considerable doubt and difficulty to me when I published my Annotated List of British *Anthomyiidae*.†

*SPILOGASTER DUPLARIS*, Zett.

Under this label Stein found the following species placed: first came a male of *Sp. communis*, Dsv., this was followed by three males of *Sp. duplicata*, Mgn., then came another specimen of *Sp. communis*, marked *duplicata*, and, lastly, one of *Sp. duplicata*, labelled *Sp. quadrimaculata*, Flin. This shows that Zetterstedt confounded the males of *Sp. communis* and *duplicata* with his *duplaris*. The two former species are certainly distinct, though they were mixed up by Rondani, as well as Zetterstedt; the last, however, as described by Zetterstedt, was merely a variety of one of the others (probably *Sp. duplicata*); so the name of *duplaris* must lapse. I described a species in my list under this name, which I submitted to the late Prof. Rondani, and he said he thought it was the *Sp. duplaris*, Zett. I am now convinced that it was only a variety of *Sp. duplicata*. Herr v. Stein also described a *Spilogaster* as the *Sp. duplaris*, Zett. ‡, which differs from both *Sp. communis* and *Sp. duplicata* in having only three post-sutural, central, thoracic bristles, instead of four.

\* Ent. Nachrichten, Nos. 20 and 21, 1892.

† Ent. Mon. Mag., vol. xviii, p. 1.

‡ Ent. Nachrichten, 1889.

This is the same as my *Sp. atripes*.\* Stein I find still retains the name of *Sp. duplaris* for this species,† though he admits that it is not the *Sp. duplaris* of Zett.; under these circumstances, his name must also lapse.

#### CHORTOPHILA TRAPEZINA, Zett.

Stein found that the specimens in Zetterstedt's collection labelled *A. trapezina* were identical with the *Ch. impudica* of Rondani. On looking over some *Anthomyiidae*, which I received some years ago from Herr Kowarz, I found two labelled *A. trapezina*, Zett., and two others named *Ch. impudica*, Rnd. Upon comparing them together, I at once see that they belong to the same species, so I have no doubt that the names are synonymous.

Stein found an indistinctly marked specimen of *Ch. trapezina* in the collection, named *A. odontogaster*, Zett. This species is, therefore, identical with the others, and the name of *odontogaster*, as well as that of *impudica*, Rnd., must sink into synonyms of *trapezina*.

#### CHORTOPHILA CINEREA, Flin.

Stein found a number of different species placed under this name, by both Fallén and Zetterstedt, and the description given by these authors are so imperfect, that it is impossible to identify the species. In my list I included two distinct ones together, the males I subsequently found were those of *Phorbia cepetorum*, Mde., and the females I now see belong to *Ch. trapezina*.

#### CHORTOPHILA STRIOLATA, Flin.

Stein found *Ch. pudica*, Rnd., placed under this name, as well as a male of *Ph. trichodactyla*, Rnd.; neither of these will agree with Zetterstedt's description of *Ch. striolata*, which is not very clear, and does not correspond well with those of Fallén and Meigen, so I think that we must reject Zetterstedt's *Ch. striolata* altogether. This species, however, is a well marked one, and not uncommon in England. I formerly confounded it with *Ch. trapezina*, to which it bears some resemblance, but Mr. Verrall pointed out that they were distinct; the abdomen in *Ch. striolata* being rather depressed and tapering, while in *Ch. trapezina* it is sub-cylindrical; the anal segments of the male are also much smaller and less prominent than in *Ch. trapezina*, and the abdominal dorsal marks smaller and subtriangular, instead of being subquadrate. Meigen's and Schiner's descriptions are rather imperfect, but that of Fallén is more characteristic; he says: "Abdomen canescens convexum, incisuris nigris, linea dorsalis quoque adest e guttis nigris formata."

#### PHORBIA PLATURA, Mgn.

Three males of *P. cilicrura*, Rnd., with one of *P. trapezoides*, Zett., were placed under the name of *platura* in Zetterstedt's collection.

This species seems involved in a good deal of obscurity. Many years ago Herr Kowarz sent me a specimen of *P. cilicrura*, marked *A. platura*, Mgn. I then supposed it to be named in mistake, but I now believe that these two species have often been confounded together. The larvae of *P. platura* are said to have been found in onions, and I have bred numerous specimens of *P. cilicrura* myself from those bulbs,

\* Ent. Mo. Mag., 1880, p. 425.

† Ent. Nachrichten, 1893, p. 217.

together with the larger onion-flies (*P. cepetorum*, Mde.). Rondani describes *P. platūra*, Mgn., in addition to his *P. cilicrura*, and says of the former: "pedes nigri, tibiis posticis nec intus nec antice setulosis," which shows that his were distinct species. Meigen and Schiner say nothing about the armature of the hind-legs in their descriptions of *P. platūra*, so if the species which they described were identical with *P. cilicrura*, they must have overlooked the row of short ciliæ on the inner sides of the hind tibiæ, which are characteristic of the latter species.

Stein found another specimen of *P. cilicrura*, placed under the name of *A. fusciceps*, Zett., in Zetterstedt's collection, and in his description of the latter, Zetterstedt mentions the *ciliated* hind-legs, so there is no doubt about these two being identical. To what species Zetterstedt's description of *A. platūra* refers it is impossible to determine.

#### ANTHOMYIA BRUNNEILINEA, Zett.

M. Stein found that a specimen so named was identical with *Hylemyia seticrura*, Rnd.

#### ANTHOMYIA PILIGERA, Zett.

The flies placed under this name were only males of *Drymeia hamata*, Fln.

#### ANTHOMYIA VILLIPES, Zett.

This was identical with *Ph. floccosa*, Mcq.

#### ANTHOMYIA ALBIPUNCTA, Zett.

Under this title Stein found a specimen of my *Hydrotæa fasciculata* placed; Zetterstedt entirely overlooked the dentated fore femora, though he noticed the fasciculus of hairs on the hind-legs. He thus removed this species out of its proper genus.

### UNRECORDED BRITISH ANTHOMIDS.

#### HYDROTÆA VELUTINA, Desv.

##### *brevipennis*, Lw.

This shining black species bears a general resemblance to *H. impera*, Lw. The eyes of the male are bare, contiguous throughout almost their whole length, leaving only a very small, black, triangular space above the antennæ, in which is placed a white spot; face black, with white reflexions; antennæ rather short; arista slightly pubescent; thorax with scutellum shining blue-black, having four post-sutural thoracic bristles; abdomen black, with a greenish tinge, and dull grey reflexions, when viewed from behind; it is also marked with a longitudinal black stripe, which is dilated over the second segment; alulets brownish-yellow; halteres black; wings rather short, with a brownish tinge, having the cross veins rather near together, the outer one being oblique; the third and fourth longitudinal veins are parallel beyond the outer cross veins; legs black, rather slender, the fore femora have one rather small toothed tubercle near the end; the fore tibiæ are attenuated near the base, where there is a small tubercle, and are rather dilated and ciliated along the distal half. Length, about 6 mm. The female is smaller, with shining black thorax, and dull black abdomen, without white reflexions, but with a greyish apex. The cross

veins of the wings are rather further apart, and the outer one is straighter than in the male. I have only seen one British specimen of this rare fly, which I captured in July, 1891, at Grange-over-Sands, in Lancashire.

#### HYLEMYIA FESTIVA, Zett.

This handsome species bears a very close resemblance to *H. hilaris*, Fln., but essentially differs by having only a short haired or pubescent arista, instead of a long haired one; the central thoracic stripe is also straight, and not dilated into a round spot, as in *H. hilaris*. The thorax is hoary, with a central black stripe, often trifid in front; the sides are marked with an oblong or subtriangular black spot before the suture, and with an elongated one behind it. The scutellum is pale grey, with the margins black. The abdomen is cinereous, with a central black stripe and transverse irregular cross bands, less regular and distinct than those in *H. hilaris*. The wings have the outer cross veins nearly straight, and a little oblique; legs black. A single male of this rare fly is in the Rev. E. N. Bloomfield's collection, captured, I believe, near Hastings.

#### HYLEMYIA SPINOSA, Rnd. ?.

This species bears considerable resemblance in form and colour to *H. variata*, Fln.; it differs, however, in having a very short, instead of a long haired arista, and is rather larger. The eyes are contiguous; the forehead slightly prominent; the face white; the antennæ black, reaching nearly to the epistome, which is a little projecting; the palpi are black; the thorax yellowish-grey, with paler sides, and three or five longitudinal black stripes; scutellum grey. Abdomen cylindrico-conical, yellowish-grey, with black apex, marked with a straight, rather narrow, sub-interrupted, black central stripe, and with narrow transverse ones, which, when viewed from before backwards, dilate into small black spots on the sides. The edges of the segments are armed with circles of tiny black bristles; the extremity of abdomen is thickened and furnished beneath with hairy lobes. Alulæ yellowish-white and small; halteres yellow; wings slightly brunescent, with costal spine distinct; outer cross vein oblique, and somewhat sinuous, and third longitudinal vein a little curved, and diverging slightly from the fourth. Legs black; hind femora furnished with spines along their whole under surfaces; hind tibiæ having scattered spines of uneven lengths along their outer surfaces, and a few at the upper part of their inner sides. Length, about 6 mm. I captured a single male of this fly in July, 1892, near Lake Windermere.

#### PHORBIA INTERSECTA, Mgn. ?.

This species, which was unknown to me until very lately, is distinguished from all the allied species by having partly pale or piceous legs, and is further characterized by having:—Eyes of male contiguous behind; forehead slightly prominent; frontal stripe rufous or black;\* epistome slightly projecting; face white; antennæ black, very short, with the second joint wider and rather longer than the third; arista short, slightly pubescent, with the basal third thickened; palpi black; proboscis with the extremity narrow, and somewhat elongated; thorax dark brown with grey

\* Of the two male specimens which I have seen, the frontal stripe was rufous in one and black in the other. Rondani says it should be always rufous in this species, but this is a very uncertain character, varying with age.

sides, and three black stripes, moderately wide and indistinct on the hinder part; post-sutural dorsal setæ three in number; scutellum black; abdomen small (shorter and narrower than thorax), thin, and flat, with the apex thickened, and furnished beneath with a small tuft of hairs,\* the dorsum is marked by a straight black stripe, sometimes indistinct; alulæ white or yellowish; halteres yellow; wings with a yellowish tinge, especially at the base; cross veins rather near together, the outer one being straight, but rather oblique, the third and fourth longitudinal veins parallel; legs more or less rufous or piceous; fore femora quite black, and fore tibiæ only slightly piceous; middle and hind femora and tibiæ all rufous or piceous, with the extremities of the femora, as well as the bases of the tibiæ, black; all the tarsi black; hind tibiæ with some scattered bristles on their outer and front sides, but not on their inner surfaces.

I have only seen two male examples of this rare and well marked fly, one was captured by Mr. Billups, at Woking, and the other by Mr. A. Beaumont, in Scotland (Pitlochry); the legs were much paler in one than the other, but they agreed in all other characters. This species may be distinct from the *A. intersecta* of Meigen, I have, therefore, given a rather full description.

Bradford: August 5th, 1893.

#### ON VARIATION IN *VANESSA URTICÆ* AND *EREBIA BLANDINA* IN SCOTLAND.

BY KENNETH J. MORTON, F.E.S.

When I had the opportunity a few months ago of showing Mr. Barrett the few *Lepidoptera* in my collection, he pointed out that two of my four examples of *Vanessa urticæ* were sufficiently out of the ordinary run to deserve notice. These two insects were reared in the beginning of August, 1892, from larvæ gathered in a west of Scotland locality about the end of June, 1892. They are of large size, 58 mm. in expanse, and the deep orange-red ground colour has, in one of the examples, almost entirely taken the place of the yellow blotches on both wings, only a trace of yellow being visible on the costa of the fore-wing; the other example, although not so extreme, shows a very decided inclination in the same direction. In both examples the two spots on the disc of the fore-wings are rather large. The larvæ from which these butterflies were reared were, doubtless, the offspring of hibernated ♀s, one brood in ordinary seasons being, I think, the rule in most parts of Scotland. In a season like the present, there may be two broods in the more favoured parts, as at the very beginning of July of this year I found *V. urticæ* flying in great abundance at the spot where the above-mentioned larvæ were taken, and of a form quite

\* Meigen says that the apex is black and shining, but it was grey in both the examples that I have seen.

different from that just described, having only an expanse of 50 mm., with yellow blotches all distinct, and the two discal spots exceptionally small.

While on the subject of variation, I may also mention that in one locality in the south of Scotland *Erebia blandina* (Medea) frequently occurs with the ocellated spots on both upper- and under-sides reduced to such an extent that hardly more than the white pupils remain—a condition parallel to that of the *ab. Arete* of *Epinephile hyperanthus*.

Carluke, N.B. :

August 2nd, 1893.

# CONCHYLIS IMPLICITANA, Wk.—A RETROSPECT.

BY THE RIGHT HON. LORD WALSHINGHAM, M.A., LL.D., F.R.S., &c.

My attention has been called to some remarks on *Conchylis Heydeniana*, H.-S., and *implicitana*, Wk., published in the Ent. Mo. Mag., XXVII, 2—3 (1891), and which I readily admit may become a source of error if taken to prove that the British species of *Conchylis* occurring on *Anthemis cotula* should be rightly called *Heydeniana*, H.-S. I should have stated that Herrich-Schäffer's description seems to apply to this species only in part, and that as the figure which accompanied it had been recognised as distinct, Wocke was justified in limiting the name to the form figured, which had long been known as *Heydeniana*, Mn. (MS.), whereas the northern form was known and was referred to by Herrich-Schäffer in his description as *Heydeniana*, Koll. (MS.).

Wocke, although justified in this limitation, was in error in believing that *implicitana*, Z. (MS.), was really the northern species *Heydeniana* (Koll. MS.), H.-S. text, whereas it was in fact, as shown by a specimen in the Zeller collection, *Heydeniana* (Mn. MS.), H.-S., fig. 369.

I was evidently misled by Wocke's error in misapplying the name *implicitana* to the northern form when I had the original specimen with Zeller's own label "*Implicitana*, Man., 1849," before me. It is now clear that the specimen was so labelled before the northern and southern species were separated by Wocke, and before he had thus fixed the names by preferring with good reason Herrich-Schäffer's sufficiently correct figure to his obviously mixed description. Wocke's transposition of the two names may be traced to his having apparently

thought that the figure was taken from a Regensburg specimen, and that the species therefore occurred in Germany as well as in Italy, whereas it probably represented one of the Italian specimens taken by Salviano which Herrich-Schäffer selected as the typical form. Wocke's limitation must in any case be accepted, and Walker's reference, Cat. Lp. Ins. B.M., XXXV, 1787 (1866), under the heading *implicitana*, "a—c, Ratisbon. From Dr. H.-Schäffer's Collection," affords at least presumptive evidence that Herrich-Schäffer himself accepted it.

McLachlan, Ent. Ann., 1869, 90, pointed out that Herrich-Schäffer's description did not refer to the species which he figured; and failing to notice Wocke's restriction of the name to the figure, identified the English species as *Heydeniana*. He correctly referred *implicitana*, H.-S. (= Wocke) to the description of *Heydeniana*, but erroneously treated Zeller's MS. name *implicitana* as also a synonym, in short, following Heinemann, he reversed what Wocke had done, and adopted the name *Heydeniana* for the description instead of for the figure.

It is not improbable that there are still other species which may be distinguished among our series, but I have not been able to recognise *Heydeniana*, H.-S., fig. 369, among British specimens. No synonymy was given in my paper above referred to, and perhaps more information is desirable before attempting it in full, but to encourage further investigation, I give some of the principal references, together with a list of the food-plants which have been recorded for the larva, and the dates of its appearance; for all these the authors quoted are of course responsible, and it has yet to be determined whether more than one species has been recorded under these quotations.

#### 878—IMPLICITANA, Wk.

= HEYDENIANA HS. (*partim*, Wk. 3) = SUBROSEANA Wilk. (*nec* Hw., McL. 12) = ANTHEMIDANA Wilk. (Hein. 11). *Cochylis heydeniana*, HS., Schm. Eur. IV. 187. *partim* (1849) <sup>1</sup>; *Cochylis subroseana*, Crt., Pr. Ent. Soc. Lond. (n. s.) III. 43—4. (1855) <sup>2</sup>; *Cochylis implicitana*, Wk., in HS. Schm. Eur. VI. 157. (1856) <sup>3</sup>; (?) *Eupæcilia subroseana*, Wilk., Br. Tortr. 309. (1859) <sup>4</sup>; Stn. Man. II. 274. (1859) <sup>5</sup>; *Eupæcilia anthemidana*, Wilk., Br. Tortr. 309—10. (1859) <sup>6</sup>; Stn. Man. II. 274. (1859) <sup>7</sup>; *Conchylis anthemidana*, Wkr. Cat. Lp. Ins. B. M. XXVII. 236. (1863) <sup>8</sup>; *Conchylis implicitana*, Wkr. Cat. Lp. Ins. B. M. XXVII. 236. (1863) <sup>9</sup>; XXXV. 1787. (1866) <sup>10</sup>; *Eupæcilia heydeniana*, Hein. Schm. Deutsch. Tortr. 83. (1863) <sup>11</sup>; *Eupæcilia heydeniana*, McL. Ent. Ann. 1869. 90. <sup>12</sup>; *Eupæcilia anthemidana*, McL. *partim* Ent. Ann. 1869. 92—3 <sup>13</sup>; *Eupæcilia heydeniana*, Brt. Ent. Mo. Mag. V. 245—6. (1869) <sup>14</sup>; (?) *Eupæcilia subroseana*, Brt. *partim* Ent. Mo. Mag. V. 245—6.

(1869) <sup>15</sup>; *Conchylis implicitana*, Jourdh. Ann. Soc. Ent. Fr. (4. s.) X. 256. (1869) <sup>16</sup>; *Cochylis implicitana*, Stgr. & Wk., Cat. Lp. Eur. II. 245 No. 878. (1871) <sup>17</sup>; (?) Mill. Cat. Lp. Alp. Mar. 276. (1875) <sup>18</sup>; (?) *Eupæcilia subroseana*, Brt. partim Ent. Mo. Mag. XI. 194. (1875) <sup>19</sup>; *Eupæcilia heydeniana*, Brt. Ent. Mo. Mag. XI. 194. (1875) <sup>20</sup>; *Eupæcilia anthemidana*, Brt. partim, Ent. Mo. Mag. XI. 194—5. (1875) <sup>21</sup>; *Conchylis heydeniana*, Hrtm. Mitth. Münch. Ent. Ver. III. 179. No. 874. (1880) <sup>22</sup>; *Conchylis implicitana*, Hrtm. Mitth. Münch. Ent. Ver. III. 179. No. 878. (1880) <sup>23</sup>; *Cochylis implicitana*, Rouast Cat. Chen. Eur. 130. (1883) <sup>24</sup>; *Conchylis heydeniana*, Wlsm. Ent. Mo. Mag. XXVII. 2—3. (1891) <sup>25</sup>.

*Larva*—in fl. *Anthemis cotula* <sup>2, 6</sup>, *Gnaphalium* <sup>12</sup>, *Pyrethrum inodorum* <sup>12</sup>, *Tanacetum* <sup>16</sup>, *Artemisia* <sup>16</sup>, *Solidago virgaurea* <sup>16</sup>, *Chrysocoma linosyris* <sup>23</sup>, VI <sup>23</sup>, VII <sup>5</sup>, VIII <sup>2, 23</sup>, IX <sup>23</sup>, X <sup>16</sup>.

*Imago*—IV <sup>23</sup>, V <sup>3</sup>, VI <sup>1</sup>, VII <sup>3</sup>, VIII <sup>3</sup>, IX <sup>2</sup>.

*Hab.*—GERMANY—Frankfort a.M. <sup>1</sup>, Haimerwege <sup>1</sup>, Hanover <sup>1</sup>, Regensburg <sup>3</sup>, Breslau <sup>3</sup>, Glogau <sup>3</sup>, Wiesen <sup>3</sup>, Ratisbon <sup>10</sup>, Brunswick <sup>11</sup>. AUSTRIA—Vienna <sup>11</sup>. FRANCE—Cannes <sup>18</sup> (?). SCOTLAND—Airthrey <sup>5</sup>. ENGLAND—Ryde <sup>2</sup>, Ambleside <sup>5</sup>, Charlton <sup>6</sup>, Haslemere <sup>14</sup>, Darenth Wood (Wlsm.), South Kensington (Wlsm.).

Having regard to the confusion of names, it would perhaps be a mere waste of time to hunt through the recorded occurrences of this species; I have met with it myself on two occasions only, once on the borders of Darenth Wood, and once on some waste ground at the back of the British Museum (Natural History) in Cromwell Road.

I have purposely avoided expressing any preference for the views of McLachlan or Barrett with regard to *subroseana*, Wilk., described from Airthrey and Ambleside; the former places it as a synonym of *Heydeniana* (= *implicitana*, Wk.), the latter associates it with *ciliella*, Hb., the references are added to this paper with a “?” as I have seen no Scotch specimens.

#### 874—HEYDENIANA, HS.

= IMPLICITANA (Z. MS.) Wlsm. (Wlsm.). *Cochylis heydeniana* HS. Schm. Eur. IV. 187. partim, Pl. lii. 369. (1849) <sup>1</sup>; Mn. Ver. Z-B. Ver. Wien. (Abh.). V. 552. (1855) <sup>2</sup>; Wk. in HS. Schm. Eur. VI. 157. (1856) <sup>3</sup>; Mn. Wien. Ent. Mts. III. 167. (1859) <sup>4</sup>; *Coccys heydeniana* Ld. Wien. Ent. Mts. III. 277. (1859) <sup>5</sup>; *Conchylis heydeniana* Wkr. Cat. Lp. Ins. B. M. XXVII. 236. (1863) <sup>6</sup>; *Cochylis heydeniana* Stgr. & Wk. Cat. Lp. Eur. II. 245. No. 874. (1871) <sup>7</sup>; M-P. & F-T. Nat. Sic. VIII. 154. (1889) <sup>8</sup>; *Conchylis implicitana* Wlsm. Ent. Mo. Mag. XXVII. 2—3. (1891) <sup>9</sup>.

*Imago*—IV <sup>1</sup>, V <sup>1</sup>.

*Hab.*—ITALY <sup>1</sup>—Tuscany <sup>3</sup>, Pisa <sup>5</sup>. CORSICA—Ajaccio <sup>2</sup>, Morreale <sup>4</sup>. FRANCE—Cannes <sup>9</sup> (?).

Merton Hall: July, 1893.



ON THE GENUS *HALOBATES*, ESCH., AND OTHER MARINE  
*HEMIPTERA*.

BY JAMES J. WALKER, R. N., F. L. S.

The genus *Halobates* is one of the most remarkable and interesting forms of the Order *Hemiptera*, and, indeed, of all insects, both from its truly oceanic habitat (unique, so far as is known at present, among the class *Insecta*), and from the very curious structure and habits of the various species. Since the expedition of von Kotzebue round the world in the Russian ship "Rurick" early in the present century, when three species were described by Eschscholtz, the founder of the genus, from the examples taken by the naturalist Chamisso, these little creatures have attracted the attention and interest of nearly every observant voyager. A literature of some considerable extent has grown up respecting them, and this has been brought together in the well-known and able "Report on the Pelagic *Hemiptera*" (Zoology of the Voyage of H.M.S. "Challenger," part xix, 1883), by Dr. F. Buchanan White, F.L.S., to which I owe much valuable aid in the compilation of these notes.

In the late surveying voyage of H.M.S. "Penguin" in Australian and Chinese waters, I paid a good deal of attention to the habits and distribution of these insects, and I propose to give here a brief summary of my observations, prefaced by those made in a former voyage to the Pacific in H.M.S. "Kingfisher."

Crossing the tropical Atlantic in this latter vessel in 1880, I kept a good look out for the characteristic species of that ocean, *H. Wüllerstorffi*, Frauenf., but neither on this occasion, nor on my return voyage across the Atlantic in 1884, did I observe a single specimen of *Halobates*. The first time that any came under my notice was on October 6th, 1881, in the Gulf of Panamá, but the ship was then steaming at six knots per hour, so I was unable to obtain them. Nor did another opportunity occur until more than a year afterwards, when we were on a voyage from San Francisco to Callao. On November 26th, 1882, we were becalmed for a short time in lat.  $8^{\circ} 12' N.$ , long.  $101^{\circ} 46' W.$ , when I saw a good many specimens on the surface of the sea, and caught six or seven from the ship's gangway (Ent. Mo. Mag., vol. xix, p. 278). These were the widely distributed Pacific species, *H. sericeus*, Esch. On a voyage from Callao to the Marquesas Islands, in February and March, 1883, *Halobates* was frequently observed in the open ocean whenever the usually steady south-easterly breeze fell light for a short time. Several specimens were seen on February 27th

in lat.  $9^{\circ} 35' S.$ , long.  $119^{\circ} 56' W.$ , a position fully 1100 miles from the nearest land, the north-eastern outliers of the Paumotu or Low Archipelago, and more than twice as far from the coast of South America. These oceanic specimens, which I have unfortunately lost, were probably the widely distributed *H. Wüllerstorffi*, Frauenf., already known from the Western Pacific Ocean. Only a very few, mostly young larvæ, were taken in the tow-net, the adults appearing to be well able to avoid the net in its passage through the water. In all the harbours and open roadsteads of the Marquesas Islands, a species which I refer with some reserve to *H. sobrinus*, White, was plentiful, especially in Omoa or Bon Repos Bay, Fatou-hiva Island; and I saw what was probably the same species at Papiete, within the barrier-reef which encircles the Island of Tahiti. *H. Wüllerstorffi* was also found at the Marquesas, but much less commonly than the other. Rough weather prevented me from making further observations during this cruise, and in our numerous trips along the coast of Chile and Peru, I never saw the insect at all; these southern waters, constantly cooled to below  $60^{\circ} F.$  by the Antarctic current, to a latitude far within the tropic of Capricorn, are much too cold for the continuance of the species, which evidently require a high temperature during part of the year, at least.

In the voyage of the "Penguin," I first saw *Halobates* in the Red Sea (lat.  $20^{\circ} 32' N.$ , long.  $38^{\circ} 1' E.$ ), but I had no opportunity of taking more than one or two specimens until we arrived at Perim Island, in the straits of Bab-el-Mandeb. Here a species, which is certainly not the *H. Haganus*, White, recorded from Aden, but agrees well with *H. proavus*, White, from Gilolo, was found rather commonly on the sandy beaches of the Island, under seaweed and other tidal refuse, usually defunct, but often quite fresh and lively. I have a note of seeing *Halobates* (sp. incog.) in the Indian Ocean about 900 miles E.S.E. of Sokótra, in lat.  $8^{\circ} 50' N.$ , long.  $71^{\circ} 24' E.$ , but have no further record until our arrival in the Arafura Sea, off the north-western coast of Australia. A fine species, which appears to be identical with *H. regalis*, Carpenter (described from Torres Straits specimens), was by no means rare in the open sea, and in the channels among the numerous small Islands. It was also frequently found on the surface of pools of salt water left by the receding tide on the coral reefs. On one of these (Guichen Reef, near Troughton Island, lat.  $14^{\circ} 45' S.$ , long.  $125^{\circ} 10' E.$ ), I found, besides the *Halobates*, several specimens of a species of the singular allied genus, *Hermatobates*, Carpenter, closely related to, though differing in many respects from,

the *H. Haddoni*, Carp., recorded from Mabuiag or Murray<sup>†</sup> Island, Torres Straits. These occurred under large dead bivalve shells (*Tridacna*), and with them I found a good sized spider of very ordinary structure and appearance, which must have been submerged, on this completely isolated reef, twice every day to a depth of ten or more feet. Another very minute apterous but fully adult *Hemipteron*, bearing a close superficial resemblance to the fresh-water genus *Hebrus*, was found not rarely at Cartier and Baudin Islands under blocks of coral on sandy beaches, very little above low-water mark.

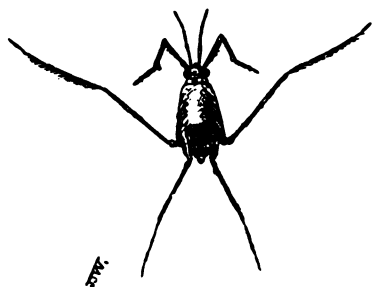
*Halobates regalis* was also tolerably common in the noble harbour of Port Darwin, where I took with it an undetermined species of the allied genus, *Halobatodes*, White. The habitat of this genus appears to be estuarine rather than oceanic, as I subsequently met with it in a similar situation in China. On the voyage from Port Darwin to Hong Kong, in November, 1891, a very fine species of *Halobates* was observed off the coast of Gilolo, in lat. 1° N., long. 127° E. Several specimens, including both sexes *in cop.*, were taken from the ship's side, and proved to be *H. princeps*, White, recorded from the Celebes Sea.

I noted the appearance of *Halobates* in the China Sea on May 2nd, 1892, about 200 miles due south of Hong Kong; and in the following August, a species which appears to be identical with *H. princeps* was abundant among the Chusan Islands and off the adjacent coast of China in lat. 30° N. On the 13th, I went in one of our steam cutters to the head of Nimrod Sound, a long narrow arm of the sea extending inland some thirty miles, and on returning from the shore I saw a very large "school" of the insect congregated under the stern of the boat. There were quite fifty examples in the space of a square yard, and a single dip with a butterfly net served to secure half that number. *Halobatodes* sp. was also met with in Nimrod Sound, and on August 19th at Chin-hae, more than a mile within the mouth of the Yung River (on which the city of Ning-po stands), I observed numbers of what I took for larval *Halobates*, on the surface of the water within a yard of the bank. Unfortunately I neglected at the time to catch any of these, which I more than suspect now to have been *Halobatodes*.

The habits of all the species which I have observed are very much alike. In tropical latitudes, when a sailing ship is becalmed, or a steamer is stopped for any purpose in a perfectly calm sea, it is not long before little whitish creatures are seen rapidly skimming over the glassy surface with a sinuous motion, and soon half-a-dozen or more

*Halobates* are in view at once, evidently attracted by the bulky hull of the ship, which they will approach frequently within arm's length. Their progress appears to be effected by a sort of *skating* action of the long, ciliated intermediate and hind legs. When the ship is anchored in a current or tide-way, they keep abreast of her by a series of short rushes of a foot or so, against the stream, giving a speed quite sufficient to stem a current of two or three knots per hour. I have also noticed that they particularly like the "dead water" next the rudder under the ship's stern, where they may often be seen when none are visible elsewhere. They show great dexterity in avoiding the net, and a quick dip is necessary to effect a capture; the tow-net was often put over astern in the "Penguin" when thus anchored, but it never entrapped a single specimen. I find in my diary for November 26th, 1882 (the first note of their capture), "They (*H. sericeus*) were not caught without a good deal of trouble, as they were exceedingly agile, dodging the net when it came near them, and occasionally diving under it. They seemed to like the sunshine, and were much scarcer when it was overcast." A heavy swell, provided the weather is quite calm, does not prevent their appearance, but with the ripple caused by the slightest breeze, they vanish at once; though sometimes, as at Nimrod Sound, they were to be found in plenty on the narrow belt of smooth water to leeward of the ship, when not one was to be seen on the windward side.

When in the net, all the species are exceedingly active, skipping about with a very lively motion like that of our familiar fresh-water *Gerris*. I have seen them leap quite a foot high from the deck, and have lost a good many through their skipping over the rim of the



*Sketch of Resting Attitude  
of Halobates.*

net into the sea. They are otherwise very helpless out of water, as besides skipping, they can only shuffle along with their thin wiry legs. I have kept the Chinese species alive for several days in a vessel of sea water; at first they are very restless, rushing about and occasionally jumping up two or three inches from the surface, but after a few hours they become much quieter. They then rest on the

water with the legs widely extended, and the intermediate pair brought forward so as to have the tarsi in advance of the head (as in the

annexed sketch, taken from a specimen of *H. princeps* set in the attitude of repose. On the approach of the finger, or a pencil, they dive readily, and swim with great facility beneath the surface, the air entangled in the pubescence giving them a beautiful appearance like that of a globule of mercury or polished silver. This supply of air must be essential to the existence of the insects, which I feel sure must pass a large part of their life beneath the surface of the sea, diving into undisturbed water in rough or even moderate weather, and coming up again only when it is absolutely calm.

I am not able to give any information as to the food of *Halobates*, further than that I have once or twice seen several specimens congregated round small floating objects, such as fragments of seaweed, &c., as if deriving nutriment from it. Nor do they seem to be themselves preyed upon by other marine creatures; at all events, I have seen plenty of small fish about when *Halobates* has been on the sea surface, but have never seen the fish "rise" to the insect. Their integuments are so tough and leathery that they can scarcely be very dainty morsels.

The union of the sexes takes place on the surface of the sea, and the eggs are unquestionably carried about by the ♀, attached to the extremity of the abdomen, for some time before she parts with them. Among my specimens from the Marquesas Islands I have found two females of *H. Wüllerstorffi*, one of which has three ova, and the other a single one, thus attached. These eggs are cylindrical in shape, with rounded ends, of a deep ochreous-yellow colour, and the envelope is of very tough and firm consistence; their size compared with that of the parent is enormous, as they are just over 1 mm. in length. Where they are eventually deposited still remains a mystery, though Prof. Uhler (Standard Natural History, vol. ii, p. 269, Boston, 1884) suggests that the insects may use *Sargassum* or other floating seaweeds as a nidus. I have found young larvæ in the tow-net in the Central Pacific many hundreds of miles from land, but I am inclined to think that oviposition is usually effected within a much less distance of the coast; and all my experience tends to show that the creatures are much more numerous near the land (or at any rate, more frequently observed in large numbers) than in the open ocean.

Dr. Buchanan White, in his "Report," enumerates eleven species of *Halobates* as known to him, and two others have since been described, *H. Whiteleggi*, Skuse (Records of the Australian Museum, p. 174, plate 1), and *H. regalis*, Carp., both from Australian waters. Some of these appear to be very restricted in their distribution, while

others have a very wide range over the ocean. Thus, *H. Wüllerstorffi* appears to extend over the entire Atlantic Ocean between the parallels of 43° N. and 20° S. latitude, sporadic examples occasionally reaching the shores of North Carolina (Uhler, *l.c.*), and is also widely distributed in the Pacific Ocean, over the northern half of which *H. sericeus* is also extensively spread. The former species may even be said to extend to European waters, as a specimen in the Oxford Museum is recorded as from Cape Finisterre. It is even not impossible that stray specimens may reach the south-western shores of these Islands by means of the Gulf Stream, like *Janthina*, *Physalia*, *Veleva*, and other organisms of warmer oceanic regions. The Chusan Islands, where I saw these insects in greater abundance than anywhere else, lie well outside the tropics, being intersected by the 30th parallel of N. latitude, and they have a winter of considerable severity, even colder than our own; their summer, however, from June to the end of September, is exceedingly hot, and the temperature of the surface-water of the sea surrounding them rises above 80° for a large part of this time.

I have, in conclusion, to thank Mr. C. O. Waterhouse, of the Natural History Museum (where most of my specimens of *Halobates* are deposited), for kind assistance in identifying the species.

23, Ranelagh Road, Sheerness :  
August 30th, 1893.

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#### ON THE HABITS OF *MESOVELIA FURCATA*, MULS. & REY.

BY EDWARD A. BUTLER, B.A., B.Sc., F.E.S.

This species of *Hydrometridæ* has so seldom occurred in this country, and so little seems to be known of its habits, that the results of a few observations on a colony I have recently met with may be of some interest to Hemipterists. The colony in question I found last August on a pond in an orchard in the hamlet of Fifield, between Maidenhead and Windsor. The pond was a long narrow one, about 120 ft. by 30; on its banks were growing *Alisma*, *Polygonum*, *Lycopus*, *Mentha*, *Bidens*, &c., and in the water was abundance of *Potamogeton natans*, together with *Polygonum*, *Chara*, and some other pond-weeds. *Mesovelia* was to be found on the leaves of the *Potamogeton*, but, in consequence of the greenish colour and extreme slenderness of the insects, it was exceedingly difficult to see them from the banks, and, in fact, I could never be quite certain that I distinguished them, and the numerous small *Diptera* which were also running about over the

leaves did not facilitate their discrimination. *Microvelia pygmæa*, which was also present in great numbers, could be seen without any difficulty, though so much smaller. Promiscuous skimming of the surface with a water net, however, yielded a plentiful supply of the previously invisible *Mesovelie*. With the exception of a single winged specimen, all that I found (probably as many as 150) were undeveloped; of the much more abundant *Microvelia*, I found eight developed examples. I kept a number of *Mesovelie* under observation in a glass jar for three weeks. When disturbed, they were extremely lively, darting about over the leaves of *Potamogeton* and the water with equal ease and extraordinary agility: in fact, they moved under such circumstances far more rapidly than any other of our aquatic *Hemiptera*. On the water they maintain the same position as on the leaves, and their motion is in both cases an insect's ordinary walk or run, *i. e.*, the corresponding legs of the opposite sides are moved alternately, as in *Hydrometra*, and not simultaneously, as in *Gerris*. The position on the water is intermediate between that of *Hydrometra*, in which the body is kept high above, and that of *Microvelia* or *Velia*, in which it is close to, the surface, and as with *Hydrometra*, only the tarsi are in actual contact with the water. When resting, they often assumed a frog-like position, the male especially sloping its body, with head in air, and hinder extremity almost touching the leaf on which it was standing. They often rested also on the sides of the jar, climbing up just above the water level, and remaining there, out of contact with the water, but with head turned towards it, so as to be ready on the slightest alarm to dart down to a position of greater freedom.

They are carnivorous in tastes. I kept them supplied with a variety of small insects, and on different occasions saw them sucking a *Smynthurus*, a *Crambus*, a *Chalcid*, and, apparently most unpromising of all, a *Hydrometra*. The rostrum is extremely flexible, and in feeding is bent into whatever position enables the insect to reach the most easily assailable parts of its prey. The setæ do not seem to be powerful enough to pierce such a hard integument as covers the greater part of the body of *Hydrometra*, and in this case, therefore, advantage was taken of the softer skin which occurs at the junction of the coxæ with the body, and the rostrum was thrust in there. One of the females, after taking a long draught of *Smynthurus* blood, walked to the edge of the floating leaf on which its prey was lying, dipped its rostrum into the water, and then rubbed it with its fore-legs. As it is evidently of the utmost importance that the rostral channel should be kept open and clear for the passage of liquid, I have little doubt

that this action was undertaken for cleansing purposes, to remove congealed blood that may have oozed from the body of *Smynthurus*, and collected on the rostrum. Still, it is quite possible that the insect may have been drinking as well, for I have seen a *Hydrometra* similarly dip its rostrum into the water without having previously partaken of food, but in that case it did not rub its rostrum on withdrawal. I should imagine that the usual food would be the small *Diptera* and *Hymenoptera* with which the leaves of the *Potamogeton* swarm, and that this is the reason for their selecting these leaves as their usual head-quarters. But whether they catch their prey alive, or avail themselves of the numerous drowned or partially disabled specimens that are sure to be found lying about, I cannot say, since the supplies I gave them consisted only of freshly killed insects, and the difficulty of seeing them on the pond prevented my deciding the matter by watching them in the open.

*Mesovelis* is scrupulously cleanly in habits. The specimens I was observing, when first put into their jar, were incessantly busy cleaning themselves. Each leg on either side rubs its next neighbour on that side; the fore pair also clean one another in the manner with which the house-fly has made us familiar. With the fore-legs also the insect cleans its antennæ and rostrum, drawing the antennæ between the two tarsi, and then running the latter down the rostrum, taking great care that the tip of that instrument is thoroughly cleaned. With the second and third pairs of legs they clean the back, by rubbing the tarsi over the surface. When the above toilet had been gone through, I occasionally saw them bob down and bring the under-side in contact with the surface on which they were resting, but whether this was with a view to cleansing, or some other reason, I cannot say. I do not think *Mesovelis* ever voluntarily goes below the surface, and, in fact, they would probably find it a difficult matter to do so. When a specimen was purposely submerged, it rose at once, but experienced some difficulty in getting above the surface again, on account of the fluid tension, which required a struggle to overcome, but when once up, there was no further difficulty, and it at once set to work to brush itself down with its tarsi. *Hydrometra* does not get so easily over a like experience. A specimen of this insect when submerged found the greatest difficulty in emerging from the water, its hair-like legs drawing out a thin film of water as it thrust them above the surface, and when it had at last got clear, and apparently escaped from the troubles of capillarity, it was unable for some hours to venture safely on the water again; each time that it attempted to do so, its tarsi



gradually slid outwards, and its legs sank farther and farther, till the poor creature was left sprawling upon the surface in a perfectly helpless condition. By refraining for some hours from trusting itself to the treacherous element, it ultimately recovered its power, and was able to run about over the water as freely as before. When *Mesovelis* was plunged beneath the surface, a film of air could be seen clinging to its ventral surface, just as with beetles, like *Hydrobius*, &c. There were some *Hydræ* in the jar, and I was interested in watching an encounter between one of these and a *Mesovelis* which I had submerged. On touching the tentacles of the polypi, the insect became at once entangled in the stinging threads, and was evidently much alarmed; it struggled spasmodically, and with great energy, and several times freed itself only to become again entangled by further movements. At last it got clear and rose to the surface, and then a most vigorous cleaning took place, when it appeared that one of the fore-legs was paralysed. Again and again the little creature stroked the injured limb out straight, but each time it returned to the cramped position, and could not be put to the ground. The effects of the stinging, however, went off after a time, and it completely recovered the use of the limb.

Pairing took place several times, and the bodies of the females became by the end of the three weeks greatly distended. I hoped to have seen oviposition take place, but in this was disappointed, nor could I discover that any eggs had been laid on the leaves or on the sides of the jar. On leaving the neighbourhood, I attempted to bring some specimens with me, keeping them as carefully as I could in a small jar of water; but the shaking in the railway was too much for their constitution, and by the end of the journey most of them were drowned, or, at any rate, appeared to be. These I at once set; but possibly some of them might have recovered, had I given them a chance, for I found next day that one had laid an egg on the card. The egg is a long white body, very large in proportion to the size of the insect, about 1 mm. long, *i. e.*, about one-fourth of the length of the entire insect. It is a slightly curved cylinder with rounded ends, and with a segment at one end of slightly smaller diameter than the rest. It would, perhaps, be unwarrantable to assume from the laying of this egg that oviposition normally takes place at the end of summer, since the process may have been accelerated by the shock of drowning. But whatever the condition of the insects during the winter, whether they hibernate as imago or as larvæ, or whether they pass the winter in the egg condition, or whether the females only survive till the next

season, impregnation certainly takes place in the summer, and *Mesovelis* is certainly an earlier insect in attaining maturity than the rest of the surface *Hemiptera*. On the same pond there were *Gerria paludum*, *odontogaster*, and *argentata*, *Microvelis* and *Hydrometra*, and all of these showed plenty of specimens, either actually in the larval condition, or only just transformed into imagos, and still soft, but I found only a single specimen of *Mesovelis* larva, all the rest being adult, even when I first found them, at the beginning of August.

39, Ashley Road, Crouch Hill, N.:        ♀  
September 6th, 1893.

*Colias Edusa* in South Devon.—*C. Edusa* is common here now. I saw dozens to-day, all in very good condition. I have not seen the var. *Helice*, nor *C. Hyale*.—R. MELDOLA, Budleigh Salterton: August 30th, 1893.

*Variation of Xylophasia polyodon*, &c., in Donegal.—When in Donegal last month I had some very good nights with sugar. I was much struck by the range of variation exhibited by *X. polyodon*, *Triphæna pronuba*, and *Apamea oclea*, and, as there has been so much interest aroused of late concerning the dark forms of these and other species, I think that a note of what occurred may be interesting.

The locality was a hill immediately above the sea, and sloping sharply down to the cliff and beach; the soil was limestone, the surrounding country hilly, no trees, except a few stunted willows and sallows bent by the west wind; houses few and far between, so that smoke was practically unknown, no bogs, the people having to draw their turf several miles. The dry season had reduced the rivers considerably below their usual summer level, and all surface springs were dried up. Such were the conditions.

*Xylophasia polyodon* varied from the usual light form to a deep black and a rich warm brown, this latter being very handsome; *Triphæna pronuba* from a light drab to a deep mahogany colour that looked quite black in the lamp light, it also showed some fine red forms; *Apamea oclea* exhibited some most handsome black varieties, as well as the light brown, and those with the whitish dash across the fore-wings. All these appeared together, and in fact were jostling each other to get at the sugar, or, rather, treacle; *X. polyodon* being very active and pugnacious, two on one occasion setting at each other like gamecocks. The dark forms were numerous, especially among *X. polyodon*, a fact which surprised me, as neither the locality nor the season seemed specially adapted for their production. If these facts should prove of interest to any who are working at the melanism problem, I shall feel highly rewarded.—W. F. JOHNSON, Winder Terrace, Armagh: Aug. 17th, 1893.

*Lepidoptera in the Swansea district*.—The following notes of captures during a few weeks' stay at Langland's Bay, near Swansea, during the month of July, may prove of some interest. The hills and cliffs between the Mumbles and Langland's Bay abounded with insect life. *Satyrus Semele*, in fine condition, was to be found in surprising profusion, together with *S. Janira*, *Megara*, and *Tithonus*. One worn

♀ *Colias Edusa* was obtained. Much pleasure was derived from witnessing a case of natural "assembling," in which a splendid ♀ *Bombyx quercus* attracted four ♂, all being taken together in one hole on a bank, besides other specimens. Night work was difficult on the steep cliffs, but (*inter plurima alia*) a very dark variation of *Agrotis puta* came to sugar, and one *A. lucerneæ* was attracted by light, the latter was also observed flying in bright sunshine, but the cliffs were not favourable for their capture. *Triphana interjecta* was also on the wing in daylight, though only one example was taken. The lovely *Pyrausta purpuralis* was plentiful, accompanied occasionally by the charming *Ennychia cingulalis*. The fine ragwort on the sand hills near Swansea produced *Agrotis tritici* in abundance, and *A. vallisneria*, *A. ripæ*, and *Leucania littoralis* sparingly. The last named was rather worn. In this early season we were probably rather late for it. We heard of *A. præcox* being captured, but we were not fortunate enough to meet with it. Two examples of a very pale variety of *Hydræcia nictitans* occurred at sugar, very distinct from those found inland. The pretty and delicately marked little *Eubolia lineolata* was fairly plentiful here, using the dwarf *Rosa spinosissima* as cover. In Sketty Park, where, by the kindness of Captain Robertson, we were invited, sugar proved most successful. Amongst many others, the following are noticeable:—*Amphipyra pyramidea*, literally in crowds, sometimes twelve to twenty on a tree; *Triphana fimbria*, a few; *Hydræcia micacea* and *H. nictitans*; *Cosmia trapezina*, common, and *C. pyralina*, not many, and those worn. Captain Robertson on one evening that we were with him took a very perfect *Noctua depuncta*, which was new to the district. He also told me that *Bombyx quercus*, *Agrotis lucerneæ*, and *Ennychia cingulalis* had not been taken there before.—A. NASH, Standish Vicarage, Stonehouse, Gloucestershire: August, 1893.

*Gelechia celerella*: a correction.—In my note on pp. 213-4 of the current volume, I incorrectly wrote, "*Gelechia celerella*, Doug." instead of "*G. celerella*, Stn." This mistake appears in one or two printed lists, and is repeated in Mr. South's Synonymic List (1884), which misled me. The fuller reference is *G. celerella* (Doug., MS.), Stn., Sup. Cat., p. 5 (1851); Doug., Trans. Ent. Soc. Lond., New Series, vol. i, pp. 243-4 (1852).—EUSTACE R. BANKES, The Rectory, Corfe Castle: August 31st, 1893.

*Chrysomela gattingsensis*.—Half a dozen *Chrysomela gattingsensis* in four times that number of years is slow work, but this is about all I found, and the species seemed so much wanted that I could not keep these, so one elytron only has been in my collection for years to show what the insect was like. This half dozen I picked up one at a time at long intervals, stray things, in a road or path generally. Whenever I found one I searched well near the spot to try and learn how they were to be got; I swept and searched by night and in the sunshine, but nothing more ever came of it. The other day I was in Reading, and my friend Mr. Hamm mentioned that he had picked up some *Chrysomela*, and he turned them out of the bottle for me to see—they were three *gattingsensis*. Now, three looked like business, so we went the next day and searched the ground closely, and found 28 specimens at the bottom of the grass and plants that afternoon. *C. distinguenda* climbs up the stems of flowers and dry grasses in the sunshine, *hemiptera* crawls slowly about in the daytime among the short grass on the chalk downs, *lamina* is best got after

dark at night by sweeping with a heavy net, *hyperici* hides itself among the flowers on its plant—and so on; *guttingensis*, however, appears to keep closer than all, and the recipe to get them seems to be—find a first specimen, and then search closely, pulling and tearing among the grass and thick stuff, in fact, hunt the ground by the inch. Every beetle was on the ground at the bottom, and a favourite place was on the ground beneath the large leaves of the mullein plants. We have now about 50 beautiful specimens from this one chalk hill.—W. HOLLAND, 21, Walton Crescent, Oxford: *September*, 1893.

*Chrysomela guttingensis*.—I am able to add more localities to those already recorded in this Magazine. Of fifteen specimens in my collection four are registered as coming from Kent, and are not of my taking. The rest I picked up in a lane somewhere to the south of Barnstaple, and all in one day. But the insect is especially common near Bridgenorth, in a lane known as “Stanley Lane,” leading to the Hall of that name, where a summer walk can hardly be taken without one or more specimens being noticed. I do not know why this beetle is still retained in the genus *Chrysomela*, as it belongs more properly to *Timarcha*.—T. A. MARSHALL, Botusfleming Rectory, Cornwall: *July 29th*, 1893.

*Coccinellidæ*, &c., in *East Kent*.—I can confirm Mr. Champion’s note on the abundance of *Coccinellidæ* this summer. I have observed them in great numbers in East Kent in the neighbourhood of Sittingbourne, the commonest by far being *C. 7-punctata*, which swarmed in the hop fields. *C. 14-punctata* and *Chilocorus similis* also occurred, besides the commoner species of lady-birds. The only other species of beetle which I noticed in the hop fields was a small *Psylliodes*, probably *P. attenuata*. This insect, which was very common in places, riddles the leaves of the hops through and through, and must, I think, cause considerable loss at times to the hop farmer. I do not know whether it is generally regarded as an injurious insect. I have one specimen of *Prionus coriarius* from this district, it is a small male, and was taken at the end of July. It has not, I believe, been recorded before from East Kent.—A. J. CHITTY, 33, Queen’s Gate Gardens, S.W.: *September*, 1893.

*Niptus hololeucus*.—An insect, which was formerly, I believe, looked upon as a somewhat rare species, viz., *Niptus hololeucus*, swarms in such profusion in a house in this town, that it will probably compel the tenants to leave it. It is almost impossible to keep it out of the food. More than 80 specimens have been destroyed in a single morning, but no efforts seem to diminish the numbers.—PHILIP B. MASON, Burton-on-Trent: *September*, 1893.

[There must be something in the house with which the insect was introduced, and if this is got rid of the beetles will probably disappear. It is exceedingly omnivorous, but appears to delight in something *piquante*, cantharides, capsicums, and cayenne pepper having been included in its *menu*.—Eds.]

*Astynomus adilis*.—I received from a friend in Hull this morning a very fine male specimen of *Astynomus adilis*; from its condition it seemed but just to have emerged from the pupa. It was found amongst timber just came from Norway, from which it had probably emerged.—ALFRED THORNLEY, South Leverton Vicarage: *August*, 1893.

*How to make a cheap and handy chloroform bottle.*—Get a “sprinkler cork,” such as is used for distributing scent—pick out one with a close grained cork; then get a small phial into the mouth of which the sprinkler will fit *tightly*, if you can procure one of the strong blown glass sort, so dear to Coleopterists, so much the better, if not, an ordinary moulded phial will answer very well, if it is protected from breakage by a turn or two of washleather or diagonally cut linen, glued or pasted evenly round the angles of the shoulder and bottom. Having charged the bottle with the anæsthetic and forced in the sprinkler, it is ready for use, which is carried out by unscrewing the top and allowing little or much of the fluid to run out as required and desired. With a very little practice the outflow can be regulated from a small fraction of a drop to a considerable quantity.—H. G. KNAGGS, Camden Road, N.W. : August 9th, 1893.

### Obituary.

*The Rev. Leonard Blomefield (formerly Jenyns), M.A., F.L.S., &c.*, died at Bath on September 1st, in his 94th year. He has been styled the “Father” of the Linnean Society, which he joined in 1822; the same title might have been conferred on him as regards the Zoological Society (1826), and the Entomological (1833), of both of which he was an original Member. Indeed, it is doubtful if there be any living Naturalist who has reached so patriarchal an age. His father was the Rev. G. L. Jenyns, a Canon of Ely, and his son Leonard was born in London on May 25th, 1800. His later education was obtained at Eton, and he passed thence to St. John’s College, Cambridge. He was ordained at the age of 23 to the Curacy of Swaffham Bulbeck, in Cambridgeshire, and subsequently became vicar of the parish for 30 years. Thence he removed to the Isle of Wight, afterwards to Bath, where he died. He abandoned the name of Jenyns many years ago, but it is under that name that he was best known as a Naturalist. He retained his faculties to the last, and even his handwriting was as firm and clear as ever. Jenyns (Blomefield) was essentially a Field Naturalist, and all his best work was done before he attained the age of 40; undoubtedly the chief of his productions was the “Manual of British Vertebrate Animals,” published at Cambridge, in 1836. We leave to general Zoologists the duty of writing an extended memoir of him. As an Entomologist he published two papers which have attracted attention. The first was: “On three undescribed species of *Cimex*, allied to the Bed-bug” (Annals of Nat. Hist., 1839), and the other on a Dipterous larva discharged in large numbers from the human intestines (Trans. Ent. Soc. Lond., 1839). The first of these related to the species of *Cimex* attached respectively to pigeons, swallows, and bats, and his attention was, no doubt, drawn to them during his investigations of the British Vertebrates. His powers of observation were so keen as to cause one to regret that he published so little latterly. He founded the Bath Natural History Field Club in 1855, and took a warm interest in the Bath Literary and Scientific Institution, to which he presented his library and herbarium about the year 1869. His earlier collections were given to the Cambridge Philosophical Society. In 1887 he published (privately): “Chapters in my Life” (second edition in 1889), which are amusing and instructive reading, on account of the reminiscences of the early days of contemporary Naturalists, and in which we learn that the post of Naturalist to the “Beagle,” accepted by Darwin, was offered to the subject of this notice, but declined.

*Arthur Claypon Horner, M.R.C.S., F.E.S.*, died suddenly from aneurism of the aorta, at Tonbridge, where he had been long settled, and where he held important medical appointments, on August 3rd. He was the youngest son of the late Rev. Joseph Horner, of Everton, Bedfordshire. We are unacquainted with his exact age, but he was in the prime of life, and will be greatly missed amongst the not too numerous band of students of British *Coleoptera*, who numbered him amongst the most diligent and successful of their colleagues, and there are those amongst them who have to deplore the loss of a warm friend. He was educated professionally at St. Bartholomew's Hospital, and was admitted M.R.C.S. in 1872; but prior to that he held the appointment of Assistant Surgeon to the 5th French Ambulance Corps, in the Franco-Prussian war; in 1875—76 he was surgeon to the "Pandora" during the arctic voyage undertaken by that vessel, in connection with which he published some notes on Arctic Natural History. It was not until 1886 that he joined the Entomological Society of London, but long previous to that he had made a name amongst British *Coleopterists*.

## Societies.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *September 11th, 1893.*—Mr. W. E. SHARP, Vice-President, in the Chair.

Mr. G. Morel-Deville read a paper, entitled, "A Fortnight's Entomology in the Canary Islands," in which he described the difficulties of collecting specimens in Canary, owing to the intense heat, the large *Cactus*, and the laval nature of the ground. He then recounted the species taken, the majority of which occurred in Great Britain, and gave a graphic description of the capital and general features of the country. The paper was illustrated by numerous photographs and specimens. The Chairman exhibited a number of *Coleoptera* from Worcester and Delamere; Mr. Harker, *Lepidoptera* from Missouri and Kentucky; Mr. Watson, the female of *Papilio Phorcas*, which he stated was apparently very rare, although the male was commonly received from Africa; Mr. Newstead, nests or cells of *Crabro chrysostoma* and *Pemphredon lugubris*, the former stored with a species of *Syrphus*, and the latter with an *Aphis*, *Melanoxanthus salicis*, Lin., common on willow, to be used as food, and *Cassida viridis*, taken on new land formed by the Manchester Ship Canal at Ince, Cheshire.—F. N. PIERCE, *Hon. Sec.*, 7, The Elms, Dingle, Liverpool.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *September 14th, 1893.*—J. JENNER WEIR, Esq., F.L.S., President, in the Chair.

Mr. Auld exhibited living larvæ of *Phorodesma smaragdaria*, Fb., also two breeding cages for larvæ, as described in the Ent. Mo. Mag. for July last, by Dr. H. G. Knaggs. Mr. South showed a fine series of *Spilosoma lubricepeda*, vars. *zatima*, Cr., and *radiata*, St., a splendid var. of *Argynnis Euphrosyne*, L., taken in Lancashire, a pale var. of *Vanessa urtica*, L., from Monmouthshire, a bluish specimen of *Procris statices*, L., and a number of *Zygæna trifolii*, Esp., including almost all the known forms. Mr. Tutt mentioned that out of about 200 specimens of this insect taken in North Kent last year, five only were absolutely typical, the remainder having a tendency to assume a six-spotted form, similar to *Z. filipendula*. Mr. Weir

said these two species occasionally cross in a state of nature. Mr. Fenn exhibited long series of *Spilosoma lubricipeda*, var. *radiata*, St., bred from ova received from Mr. Tugwell, *Gnophos obscurata*, Hb., from Folkestone, and *Macaria notata*, L., bred from ova, also *Selenia lunaria*, Schiff., and read a note thereon. Mr. R. Adkin exhibited a series of *Thecla betula*, L., and read a note with reference to the order of sexual emergence; he also showed a short series of *Pygæa pigra*, Hufn. (*reclusa*, Fb.), bred from larvæ taken in Sutherlandshire last autumn. Mr. Jenner Weir read a note in which he stated that in a recent tour in Belgium, he had seen no *Colias Hyale*, L., and but one *C. Edusa*, Fb. He also stated how exceedingly abundant the third brood of *Polyommatus Phlaas*, L., had been in his garden at Beckenham this month. Mr. Tutt gave his experience of a day amongst the *Lepidoptera* in the suburbs of Paris at the beginning of August, when *Colias Hyale*, L., was in numbers. Mr. Enock exhibited wheat stems containing pupæ of the Hessian fly from Sidmouth, where he found it infesting the wheat and barley, also examples of *Chlorops tæniopus*, the destructive ribbon-footed corn fly.—H. WILLIAMS, *Hon. Secretary*.

ON SOME MEMBERS OF THE *INSTABILELLA* GROUP OF THE GENUS *LITA* (*GELECHIA*, *partim*), WITH DESCRIPTIONS OF *L. SUÆDELLA*, *n. sp.*, AND *L. INSTABILELLA*, DOUGLAS.

BY NELSON M. RICHARDSON, B.A., F.E.S.

Some time ago I was asked by Mr. C. G. Barrett to describe the *Lita* bred from *Suæda*, a series of which he had seen in my collection. I then thought it better to defer doing so; but, with the concurrence of Mr. Atmore, who has brought the subject under public notice (*ante* p. 45), and who appears to have made the earliest recorded captures of the insect (with the exception of Mr. Hodgkinson), I now venture on the task. It will be unnecessary for me to enter upon the historical part of the subject, or to mention the various entomologists who have successively discovered this species, as that is being fully dealt with in a paper by my friend, Mr. E. R. Bankes, who will give the synonymy of the species contained in this group. I therefore proceed immediately to the description of the species which is bred from *Suæda fruticosa* and *S. maritima*, for which I propose the name *suædella*.

*LITA SUÆDELLA*, *n. sp.*

I take as a type the most ordinary form.

Exp. alar., 6"—7", very rarely less than 6½". Fore-wings with the costa slightly but regularly curved, the inner margin nearly straight after the inner basal angle; hind margin of fringe nearly straight, of denuded wing slightly concave.

Ground-colour of fore-wings ochreous, much marbled with darker and lighter shades of the same colour, and with slate coloured or dark greyish-ochreous scales, which distribute themselves more or less regularly in single rows along the veins;

these are generally most traceable towards the apex of the wing, and between the extremities of each pair of veins is situated a small blackish spot. These spots are larger as they approach the apex. An ochreous line lies in the subcostal fold from the base. The most striking feature is a broad inner marginal band of bright pale ochreous, occupying nearly one-third of the breadth of the wing, which becomes less distinct before it reaches the anal angle; into this project four blackish spots, which lie in a line on or close to the inner fold at about equal distances from each other, the last being near the middle of the wing; the first two often form a streak; opposite to these first two are two similar costal spots, which can sometimes be traced onwards as short streaks pointing towards the anal angle; there is one blackish double spot just before, and another double spot just behind, the end of the discoidal cell; a blackish streak starts from near this latter spot and runs to near the tip; the discoidal cell is sometimes much covered with dark greyish scales; fringes pale greyish-ochreous, with traces of darker transverse lines. There is no pale hind marginal fascia.

Hind-wings pale fuscous; veins darker, fringes pale greyish-ochreous with pale ochreous bases. Head and thorax bright pale ochreous; patagia darker, marbled like fore-wing; abdomen like hind-wing, tip pale ochreous, base often somewhat yellowish, but this is not constant in dried specimens. Antennæ fuscous, with indistinct pale ochreous rings; palpi pale ochreous, the last joint with a ring at base and the tip fuscous; legs pale ochreous, with fuscous markings externally, and the tarsi ringed with fuscous below the joints.

This species varies considerably, but can generally be recognised most easily by the bright pale ochreous colour of its inner margin. This marking is not, however, always distinct, and I have specimens which are almost destitute of any markings on the pale ochreous ground-colour, with the exception of the slate coloured scales on the veins, and a certain amount of almost rusty mottling, the black spots and the pale inner margin being absent. Even then the ground-colour gives a clue to the species; but such specimens are rare.

*Lita suædella* is nearly allied to *L. plantaginella* and *L. ocellatella*, well known species, and to *L. instabilella*, bred from *Atriplex portulacoides*. Of these, *plantaginella* is much the nearest, and I will therefore consider it first, and mention the points in which it differs from *suædella*. In size it is very variable, viz.,  $5\frac{1}{3}$ " to over 7", but the fore-wings are strikingly narrower than in *suædella*. To show the difference, I have measured 14 consecutive specimens in each series in my cabinet, and find that the breadth of the fore-wing (measured for accuracy with a microscope and micrometer) being taken as 1, the average full expanse of fore-wings in 14 *suædella* is 9.20, and in 14 *plantaginella* is 10.35; so that the average fore-wing of *suædella* is no less than one-eighth broader than that of *plantaginella*. I also find that the scales are more closely packed sideways on *plantaginella*, which gives it a somewhat smoother appearance than *suædella*, but this is not striking. The bright ochreous colour of *suædella* is everywhere replaced in *plantagi-*



*nella* by a greyer shade of brown, which makes it a duller and generally darker insect, but even in the lighter forms it never has the same bright ochreous tint. There is sometimes a tendency to a greyish-ochreous inner margin, and a central blackish streak often runs from base to apex. The larvæ and modes of life are also very different, as will be seen later on.

#### LITA OCELLATELLA, Stn.

This is the prettiest species of this little group, and the only one that shares with *suadella* the bright pale ochreous colour, which is often the general ground-colour, but is sometimes replaced by a creamy pink, or rarely bright pink,\* and is also often so suffused with blackish scales that very little of the ground-colour is seen. The black spots (which have the same general arrangement as in *suadella*) are small and distinct, and often surrounded by a few scales of the ground-colour without any dark ones, which gives them the ocellated appearance whence the moth derives its name, but the distinguishing feature of the species is a broad pale transverse band of the ground-colour towards the apex. This is the smallest of the group, and rarely exceeds 6", whilst it is sometimes only 5" in expanse of wings.

By a strange coincidence the larva also exceeds its allies in beauty.

This species is, I think, too distinct and well known to require further attention, the larva and food-plant being also distinct from those of its allies.

There are two other species to which I wish to refer, one of which is that bred from *Atriplex portulacoides*, to which the name *instabilella*, Dgl., appears rightly to belong; the other from *Salicornia herbacea*, etc., named *salicorniæ* by Hering. I take this opportunity of acknowledging gratefully my indebtedness to Mr. W. H. B. Fletcher for much valuable information concerning these species.

#### LITA INSTABILELLA, Dgl.

I take a specimen of one of the most ordinary forms, and not the streaked var. figured by Douglas (Zool., 1270, fig. 10), which is certainly rare in this neighbourhood, and also I believe elsewhere, and does not at all represent the usual forms of this insect.

Exp. alar., 6"—7", most usual size 6½". Costa straighter than in *suadella*, and tip of wing blunter. Fore-wings rather pale fuscous, with a slightly irrorated appearance, arising from the fact that the scales are mostly pale at their bases, with a fuscous blotch close to the toothed tip; blackish spots arranged as in *suadella*; the usual pale fascia near the hind-margin very pale greyish-ochreous, angulated, distinct; fringes greyish-ochreous with fuscous transverse lines.

Hind-wings pale fuscous; fringes paler, with greyish-ochreous bases. Thorax and patagia like fore-wing; head rather paler; antennæ fuscous, with a trace

\* A figure of the pink var. is given in Proc. Dorset Nat. Hist. and Antiq. Field Club, vol. xii, p. 161, plate V, 1890-91.

of lighter rings; palpi and legs greyish-ochreous, the last joint of palpi with the tip and a ring at base fuscous, and legs with fuscous markings externally and the tarsi ringed with fuscous below the joints; abdomen pale fuscous, with greyish-ochreous tip.

In the streaked var. the blackish spots are more or less obscured by a longitudinal blotch of similar colour, which runs from the base to the end of the discoidal cell, and is thence continued as a very narrow blackish line to the tip. There is also frequently more or less grey shading over the whole fore-wing, but the pale fascia is still distinct. The hind-wings are also rather black.

This species varies much, but may be known from *suædella* by its want of the bright pale ochreous inner margin and other parts, and especially by the presence of a pale fascia. The blackish spots are not generally all present, and are often partially or wholly replaced by rusty-brown spots; in fact, I always associate this species with the brownish colour, which sometimes pervades the whole wing. This replacement of black scales by brown ones is more or less characteristic of several species of this group, but is much the most strikingly developed in *instabilella* and *salicorniæ*. Sometimes the wing is marbled here and there with whitish scales, and ochreous scales are also sometimes present, especially along the subcostal and inner folds, but the slaty scales marking out the veins, though occasionally partially traceable, are not distinct as in *suædella*. The whole appearance is duller, and more greyish than ochreous, and, except in extreme cases, where all markings are more or less obsolete, there is no difficulty in separating specimens of these two species.

#### LARVÆ.

The following is a description of the larva of *L. suædella*, taken May 29th, 1889:—

Length, about 5". Rather stout, tapering a little in the first two and last two segments. Head rather flat, and about half the width of body.

Head, prothoracic and anal plates and legs, shining black.

Ground-colour of body very light olive-green; 3rd and 4th segments darker than the rest, sometimes strikingly so, the back a little lighter, more inclining to glaucous than the under-side; the last two or three segments sometimes tinged with yellow. The dorsal line (straight and of regular width), subdorsal line (which is made up of a short, thick, longitudinal line on the front of each segment, joined to a similar thinner line just below on the hinder half of the segment), and wavy spiracular line, and the usual warts, are reddish-chocolate and distinct. The warts are darker than the lines, and placed in a small patch of the ground-colour.

The larva is moderately active. It spins a silken tube along a shoot of *Suæda*, near to or against the stalk amongst the fleshy leaves, which it eats partially through as it proceeds, generally choosing a

position near the tip of the shoot, but sometimes on the main stem, when it fastens the leaves of the shoot down with its silken gallery. Occasionally it joins two shoots together near their tips. It does not appear to leave its first gallery until it wishes to pupate, when it retires from it to seek a convenient spot, spinning a slight cocoon. In confinement it descends into the earth to spin up, and Mr. Harwood writes me of his second expedition after the larvæ—"I was too late for larvæ, but found the cocoons in plenty in the sand under the food-plants." The larva is often abundant on *Suæda fruticosa* in May, being full-fed towards the end of the month. There is no trace of any larvæ in the *Suæda* at the time when those of *Lita instabilella* are feeding, so that the egg does not appear to hatch until the end of April. Though the brood which pupates in May and emerges in the first half of July is so abundant, I have had but little experience of a second brood. I found larvæ in some numbers feeding on *S. maritima* on August 31st, 1889 (I should mention that *S. maritima*, which is an annual, is hardly visible in May, and therefore not then available as food), but the second brood seems very uncertain, and I have only seen it on one other occasion, viz., in 1892, when I found but one larva on *S. maritima*. I unfortunately mislaid the box containing the pupated larvæ of August, 1889, and did not again find it until May, 1890, when the moths were all out and dead, so that I cannot tell whether the emergence took place in the autumn or early spring.

#### Larva of *Lita plantaginella* :—

Body with the nine middle segments of uniform width, tapering more at the tail than at the head.

Head polished, brown; prothoracic plate polished, black, divided by dorsal line of ground-colour; legs black; anal plate of ground colour, slightly polished, inconspicuous.

Ground-colour dirty yellowish, sometimes with a greenish tinge, and sometimes slightly tinged with pink, not polished. There are often faint dull pink markings, viz., dorsal line, subdorsal line composed of an irregular double longitudinal mark on each segment, and a somewhat wavy line below the spiracles. These markings are sometimes quite obsolete, and generally less distinct towards the head. Warts polished, black, and very small, except the subdorsal ones on 13th segment. Bristles almost transparent. Spiracles, when magnified, distinctly outlined with black.

I have found this larva on *Plantago lanceolata*, but *P. coronopus* seems here to be its favourite food-plant. It also feeds (Ent. Mo. Mag., xv, 89) on *P. maritima*, but I have not found it on this plant.

The egg is doubtless laid near the middle of a shoot, and the larva burrows in the root to the depth of nearly half an inch, feeding

on its substance. In doing this it bites through the stalks of some of the central leaves and flowers, but these dead parts are soon covered by the growth of the outer leaves, and the presence of the larva is only betrayed by a small heap of light brown frass (which soon darkens in colour) near the middle of the plant, the middle being occupied by a dense mass of hoary fibres, which, with the aid of a little silk to hold all together, conceal and protect the entrance to the burrow. The larva generally, if not always, pupates in its burrow, and turns to a yellowish pupa, which soon becomes brown in colour. The moth varies considerably in size, probably according to the growth of the food-plant, which is greatly affected by a dry or wet situation. It (*P. coronopus*) will grow in a very dry and hot spot, but in this case is so very small that there is but little food for the larva, but in damp situations it attains a large size. There are two regular broods of this species; the larvæ of the first feeding in May and the moths emerging in the latter half of June, the second brood feeding in July and August and emerging in September.

It will be seen that this larva differs from *suædella* in its brown head and anal plate of the ground-colour, both of which in *suædella* are black; in the ground-colour; in the markings, which are much fainter and often absent; in the size and colour of the warts, which are small and black, whereas they are distinct and reddish-chocolate in *suædella*; it also spins up in its burrow, which *suædella* does not.

#### Larva of *L. ocellatella* :—

Length, about 3". Body of uniform width, tapering in the first two and last two segments to about half. Head somewhat flattened. The usual warts are hardly raised above the surface, and the body is slightly indented between the segments. Legs short.

Head pale brown, with the jaws and margins a little darker; prothoracic and anal plates very pale brown, the former with pale dorsal line and some large and small black spots on its margins, the latter margined with dark brown, and with a few small black spots in front. The general appearance is of a pale, rather transparent, yellowish-green larva, with a bright crimson ring on each segment. Each ring is made up of a series of irregularly shaped crimson blotches, forming portions of the broad interrupted dorsal, subdorsal and spiracular lines, and a narrow lower line, which is not always visible. Warts inconspicuous, blackish, in a patch of the ground-colour, with almost colourless bristles. Spiracles very inconspicuous, with brown edges; legs greyish; testes sometimes but not always distinctly marked by a grey spot on the 9th segment. Under the microscope the red patches are seen to consist of a number of small red-edged figures of irregularly circular outline, and close together. The red colour is often very bright, but varies in intensity, especially in the front segments.

The larva has two modes of feeding. Either it burrows amongst the buds, spinning as it goes, and causing more or less deformity of the flower-spike, which, together with the small spun-up heaps of frass, betray its presence, or it mines into a leaf. In this case, unless the leaf be a very small one, it is generally so thick and fleshy, that, although the larva tunnels backwards and forwards in its substance, there is very little sign of its work apparent on the surface; and one is often surprised, on breaking open a leaf, to find how much it has been hollowed out. It quits its mine when full-fed, and in captivity pupates in the earth in a slight cocoon or amongst rubbish. The first brood feeds in May, being full-fed towards the end of the month, and emerges at the end of June; the second brood feeds in the latter part of June and July, and emerges in August, but is rather more uncertain than the first in its time of feeding and emergence, though the first emergence is occasionally retarded (Ent. Mo. Mag., xxvii, 48).

Mr. Barrett has described this larva (Ent. Mo. Mag., xvi, 261), so I hope he will excuse my giving further particulars, which I do for the sake of comparison.

Mr. Threlfall records *Aster tripolium* as a food-plant of this species (Ent. Mo. Mag., xv, 89).

#### Larva of *Lita instabilella* :—

Length, about 4". Body of uniform width, tapering in the two segments at each end. Head rather flattened, about half the width of the middle segment.

Head, prothoracic and anal plates slightly darker than the ground-colour, polished, with the jaws, palpi, and posterior and lateral margins of head and prothoracic plate, blackish; prothoracic plate with a pale dorsal line, and the anterior margin whitish.

Ground-colour pale dirty yellowish-green; 3rd and 4th segments sometimes rather brighter. Markings dull brownish-red, viz., a dorsal line, subdorsal line (which is sometimes more or less double, the lower part sending a branch downwards at each extremity of each segment, sometimes merely an irregular broad line), and a faint spiracular line, all occasionally obsolete on segments 3 and 4. Usual warts small and blackish, but as a rule not striking to the naked eye. Spiracles inconspicuous, outlined with blackish. Legs blackish. Bristles very inconspicuous, of the ground-colour.

The larva mines a leaf of *Atriplex portulacoides*, completely eating out the fleshy inside in patches, making the leaf appear whitish-green, and whitish when dryer. It also spins up to a slight extent the shoot on which the leaf is placed, and generally attacks two or three leaves on the same shoot in succession. It makes a small round hole in the skin of the leaf, and through it ejects all its excrement, so that its

mine is always quite clean. It appears to feed solely on this plant in the early spring, the only other with fleshy leaves which was growing near, in the middle of April, being *S. fruticosa*, on which there was then no trace of any larvæ. *Beta* and other plants were just shooting, and others, such as *Suæda maritima*, *Salicornia*, &c., not yet visible.

The larva is rather sluggish. It hangs by a thread when disturbed, if out of its mine, as I have occasionally seen it, when engaged in spinning up the shoot, and has sometimes a curious way of stretching out its first few segments to a remarkable length and thinness.

The larvæ pupate in captivity in a slight cocoon in earth and the moths emerge in the latter half of June. I am not aware that any second brood of this species has been detected.

It is interesting to note that many individuals of *L. instabilella*, as well as some others of this group, must pass portions of their life in their first three stages under water, as they occur on plants which are regularly covered at high tide, a phase of life which they share with several of the genus *Coleophora*. The moths must carefully choose their time for emerging, and also for egg laying, which cannot take place when the tide is high. The larvæ are also exposed to attacks by sea and land foes. All the above species occur in this neighbourhood, as well as *L. salicorniæ*.

Major Hering has most kindly sent me specimens of some species of this group which have not been found with us. *L. halymella*, Mill., and *salinella*, Z., two sandy-coloured species, which seem to be very closely allied to each other; *L. tussilaginelletta*, Hein., bred from larvæ mining the leaves of *Tussilago farfara*, a small, narrow winged, pale wainscot-coloured moth with brownish-ochreous veins and three blackish spots; and a form which is bred in the South of France from *Suæda fruticosa*, but which, in my opinion, is distinct from any of our British species, and quite different from any *suædella* that I have ever seen. My specimen has the fore-wing rather dark greyish-brown, somewhat mottled with paler brown, two blackish costal spots near the base and a few at the tip, and traces of some of the others usual in this group. It would, however, require a long series in order to be able to speak definitely about it. It is possible that some of our species may change gradually in appearance as we go southwards, but much investigation will be required before we can know the relations of the Mediterranean species to our own.

Montevideo, near Weymouth :

September 4th, 1893.

## NOTES ON NEUROPTERA.

BY KENNETH J. MORTON, F.E.S.

*Agapetus delicatulus*, McL., in Arran.—One ♂ and two ♀ of an *Agapetus* taken last July in Arran appear certainly to belong to this species. This is an interesting addition to the known distribution of *A. delicatulus*, which, as British, has only been recorded from the Killarney region, where it has been taken by Mr. King and myself. On the continent it has been found in the Pyrenees.

*Drepanopteryx phalænoides*, L., at Cleghorn.—Another example of *D. phalænoides* was beaten from *Corylus* on August 7th last. Single examples have now been taken in the locality annually for two or three years, but it still defies all efforts to make it common, the present specimen being the result of quite two hours' work in its known haunts. Distance keeps me from visiting Cleghorn in the evening, when *D. phalænoides* is known to fly, and when it might possibly be taken more freely.

Micropterous forms of *Teniopteryx*.—Amongst a very great number of *Perlida* collected during the present year perhaps the most remarkable are two micropterous ♂ of *Teniopteryx nebulosa*, L., found under stones by the river Mouse, near Cleghorn, in the early days of March. Albarda says (Annales de la Soc. Ent. de Belgique, Tome xxxiii) with regard to this form, "La forme microptère du mâle est très rare dans les collections. Sauf celle de Rambur, je n'en ai vu que deux, prises en Ecosse par M. King."

Mr. King has informed me that Albarda's remarks are not quite correct as regards the origin of the Scotch examples. These were taken by me many years ago on the Clyde about the end of February, and until the present season I have never been able to re-find the form, which (with the exception of Rambur's type of *N. minuta* alluded to) remains unknown, save from Clydesdale.

It will be observed that these newer examples were taken on a tributary of the Clyde, while the older ones came from the main stream. The latter provided this season instead an almost equally interesting micropterous form of *T. trifasciata*, Pictet. The apparent rarity of these forms is no doubt due to the time of their appearance, almost in winter, when they must be carefully sought for by stone-turning, as they rarely ascend the still bare boughs of the bushes growing along the margins of the streams, from which the winged ♀ may sometimes be beaten.

Carlisle, N.B.: October, 1893.

ON *BEMBIDIUM IRICOLOR*, BEDEL: A NEW BRITISH SPECIES.

BY E. A. NEWBERRY.

*Bembidium iricolor*, Bedel, was first described in 1879 (Fn. Col. Seine, i, p. 35), and is a near ally of *B. biguttatum*, F., and *riparium*, Ol. Though well known to British Coleopterists, it has not hitherto been included in our catalogues.

The following table will serve to distinguish the three species:—

A.—Elytra with the 7th stria indicated by a row of seven or eight punctures .

*B. biguttatum*, F.

B.—Elytra with the 7th stria wanting.

I.—Middle joints of antennæ about 3 times as long as broad; interstices of elytra broader and flatter. 4—5 mm. . . . . *B. iricolor*, Bedel.

II.—Middle joints of antennæ at most  $2\frac{1}{2}$  times as long as broad; interstices of elytra narrower and more convex.  $3\frac{1}{2}$  mm....

*B. lunulatum*, Fourc.

= *riparium*, Ol., et Auct.

*Bembidium biguttatum* usually has the first joint of the antennæ and the legs of a clearer red than in its allies; the general colour is greener, and in size it is intermediate between them; it is common, but less so than *B. lunulatum*, Fourc.

*B. iricolor* is the insect described as *riparium* in Canon Fowler's "British Coleoptera;" it is much larger than its allies, and appears to be restricted to the margins of brackish water. I have seen specimens from Rainham, Plumstead, Plaistow, Sheerness, and Southsea.

*B. lunulatum*, Fourc. (1785), = *riparium*, Ol., and is the var. *riparium* of Cox's "Handbook." As *riparium* has been used for both this species and *iricolor*, Bedel, it is perhaps best to drop the name *riparium* altogether. This is the smallest and darkest of the three species, and is very abundant.

I am indebted to Bedel's "Coléoptères du bassin de la Seine" for the antennal character in the above table, the other characters given by him do not appear to me to be so marked as the difference in the interstices of the elytra.

12, Churchill Road, Dartmouth Park,  
London, N.W.:

October 16th, 1893.

[In my book I have allowed *B. riparium* (? = *lunulatum*, Fourc.) to stand as a separate species, on the ground of the total absence of the 7th stria of the elytra, but I felt considerable doubt in the matter, and believe it to be only a form of *B. biguttatum*. As for *B. iricolor*,



the characters assigned to it by Bedel are certainly not enough to give it specific rank ; they are purely comparative and very slight, and at most the insect appears to be a local variety, found, as above stated near brackish water ; forms found in such localities are often somewhat different from the type. It is a pity, too, to further confuse the nomenclature, and, in any case, to revive *B. lunulatum* is to cause a confusion with *B. lunatum*, that is far best avoided if possible ; several of the groups of *Bembidium* are quite confused enough already.—W. W. F.].

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#### ON THE OVIPOSITION OF *NONAGRIA LUTOSA*.

BY J. GARDNER, F.E.S.

In the autumn of 1881, whilst collecting this species, I was fortunate in discovering a female depositing her eggs on a withered leaf of the common reed ; the peculiar and interesting method of concealing them was, however, not recorded at the time, and not until the night of 30th September last had I an opportunity of confirming my observations, when I was again fortunate in finding a female engaged in ovipositing, but on this occasion both the female and the leaf upon which the eggs were laid were secured.

The insect selects a withered leaf of the reed, on the under-side of which it rests, curling its ovipositor over to the surface of the leaf, near to the edge of which an egg is laid, the edge is then carefully turned over it and firmly glued down, after which egg after egg is deposited, and the same process repeated until a long roll, very little wider than the diameter of the egg, is formed, and which looks exactly like the curling up of the grass as it dries up in the ordinary course of nature, and it will be a sharp eye that can detect anything denoting the treasure which the insect has so carefully hidden ; the gummy matter which is used is exceedingly tenacious, the fold being very difficult to open.

Should the insect select a narrow leaf of the reed, which the specimen I observed on the 30th September this year had done, it commences to deposit near the small end of the leaf, folding *both* edges over.

No doubt the great care exercised in secreting the eggs is a natural instinct to protect them from the many predaceous insects so common on the banks of streams.

Hartlepool : October 3rd, 1893.

SUPPLEMENTARY NOTES ON *HALOBATES*, &c.

BY J. J. WALKER, R.N., F.L.S.

I am much indebted to Dr. E. Bergroth, of Tammerfors, Finland, and to Mr. G. H. Carpenter, of the Science and Art Museum, Dublin, for kindly calling my attention to three recently described species of *Halobates*, which I had omitted to notice in my paper on this genus (*ante* pp. 227 *et seq.*). These are—

1.—*H. splendens*, Witlaczil, "Wien, Ent. Zeit.," 1886, p. 178, fig. 1, and "Zoologischer Anzeiger," 1887, pp. 336—9. Habitat, Eastern Pacific Ocean, south of the Galapagos Islands.

2.—*H. incanus*, Witl., "Wien, Ent. Zeit.," 1886, p. 179, fig. 2, and "Zool. Anzeiger," 1887, pp. 336—9. Habitat, Indian Ocean (Arabian Sea, N. E. and S. E. of the Island of Sokótra).

3.—*H. inermis*, Dahl, "Ergebnisse der Plankton-Expedition der Humboldt-Stiftung," 1893, vol. ii, G, a, a. (Die *Halobatiden* der Plankton-Expedition, von Dr. F. Dahl, 1893, p. 6, figs. 7 and 8). Habitat, Tropical Atlantic Ocean, lat. 10° N., long. 22° W.

The first two were obtained during the scientific voyage round the world of the Italian corvette "Vettor Pisani," and the third was found by the recent "Plankton-Expedition der Humboldt-Stiftung," for the investigation of the surface-fauna of the Atlantic Ocean.

In "Zool. Anzeiger," vol. x, p. 338 (1887), Dr. Witlaczil records the following very interesting observation respecting the oviposition of *Halobates*:—"By the 'Pisani' a bird's feather was picked up at sea quite covered with eggs, which it was determined belonged to *Halobates*. Unfortunately, the same were in the last stage of development, so that they were of no use to me for the embryology of the animals."

Fr. Meinert (Slaegten *Metrocoris*, Mayr, og dens "forma præmatura" *Halobatodes*, White, in "Entomologiske Meddelelser," Kjöbenhavn, Bd. i, p. 140, 1887) discusses the relations of the two genera, and regards *Halobatodes* as an immature form of *Metrocoris*.

23, Ranelagh Road, Sheerness :  
October 20th, 1893.

A NEW MIMETIC GENUS OF *LYGÆIDÆ*.

BY DR. O. M. REUTER.

PROSTEMMIDEA, *nov. gen.*

Corpus oblongum. Caput usque ad oculos immergendum, totum verticale, a latere visum longitudine triplo altius, ab antico visum parte apicali pronoti angustius,

latitudini cum oculis æque longum. Oculi parvuli, breviusculi, ultra angulos anticos pronoti prominentes. Rostrum apicem mesostethii attingens, articulo primo caput superante, sed impressionem transversalem prostethii haud attingente, tertio secundo distincte brevior et quarto fere æque longo. Antennæ longe infra apicem oculorum insertæ, ab oculis fere æque longe ac ab apice clypei remotæ, articulo primo eodem articulo rostri brevior, secundo latitudine capitis brevior, tertio secundo adhuc brevior, quarto secundo longior. Pronotum latitudini posticæ æque longum, pone medium disco fortiter transversim impressum ibique lateribus fortiter sinuatis, his versus apicem parallelis, ante apicem fere subito valde rotundatis, angulis ipsis anticis acutiusculis, deflexis, marginibus carinatis, lobo antico convexo postico multo longior, hoc discolor. Scutellum longius quam latius, commissura clavi saltem quadruplo longius. Clavus triseriatim punctatus. Sutura ventralis tertia utrinque distincte antrorsum curvata. Pedes breviusculi. Femora antica inorassata, inferne versus apicem denticulis pluribus, ante quartam apicalem partem spinâ magna leviter curvata armata. Tibiæ inferne spinulosæ. Tarsi postici articulo primo duobus reliquis simul sumtis vix dimidio longior.

Allied to *Rhyparochromus*, Curt., but differing by the discoloured posterior lobe of the pronotum, the vertical head, and the structure of the rostrum, &c. In colour and markings this, the only known species, reminds one much of some species of the genus *Prostemma* (*Nabidæ*).

*P. MIMICA*, n. sp.

Nigra, nitidula; inferne cinereo-sericea, ventre nitido longe setoso; superne longe fusco-setosa; pronoti lobo postico scutelloque rufo-ferrugineis, illo angulis posticis infuscatis, hoc basi nigro; hemielytris opacis, albido-testaceis, fusco-punctatis, imo basi clavi, macula corii in tertia basali parte posita parteque ejus dimidio apicali nigris, hac parte nigra dimidio antico opacissima, dimidio postico nitidissima, punctata, breviter pilosula; membrana opaca nigra, macula rotundata anguli basalis aliaque transversali apicem occupante niveis; antennis, rostro pedibusque cum coxis testaceis, pilosis, femoribus apice tibiisque anticis, apice excepto, infuscatis; femoribus anticis ante spinam denticulis quinque armatis, intimo ante medium sito; capite dense subtilius punctulato; pronoti lobo postico quam antico fortius punctato.

Long., ♀, 5 mm.

Patria; Bombay, India. Communicavit D. Dr. E. Bergroth.

Helsingfors: September 11th, 1893.

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ON *TRACHYSCELIS*, WITH DESCRIPTIONS OF THREE NEW SPECIES.

BY G. C. CHAMPION, F.Z.S.

The genus *Trachyscelis*, the typical species of which is a well-known South European insect, once reputed British, is very widely distributed, but up to the present time four species only appear to have been described:—*T. aphodioides*, Latr., from South Europe; *T. flavipes*, Melsh., from North America; *T. anisotomoides*, Fairm., from

Bou-Sâada; and *T. tenuestriatus*, Fairm., from Obock. Mr. J. J. Walker, during the voyage of H.M.S. "Penguin," obtained four species, all in numbers; three of these (two from Australia and one from Ceylon) are described below, the other, from Perim, being, no doubt, referable to *T. tenuestriatus*, Fairm. All the species (*T. anisotomoides*\* excepted) live on sandy seashores, often under stones or seaweed, at or immediately below high-water mark. They are closely allied, differing chiefly *inter se* in the depth or puncturing of the elytral striæ, the ciliation of the margins of the prothorax and elytra, and the sculpture of the under-surface. Judging from Mr. Walker's experience, these insects must be very common on some parts of the Australian coast, yet the genus is not mentioned by Pascoe in his List of Australian *Heteromera*, published in 1866, nor in that of Masters, 1886.

TRACHYSCELIS CILIARIS, *n. sp.*

Short-ovate, castaneous or pitchy-castaneous, shining, the antennæ, under-side and legs testaceous or fusco-testaceous; the marginal ciliæ dense. Head and prothorax impunctate, the latter obsoletely canaliculate in the middle behind; elytra very short, almost rounded at the sides, broadest at the middle, finely punctate-striate, the inner striæ well marked and at the base deeply impressed, the outer striæ (the ninth excepted) extremely faint, the punctures fine and closely placed, but becoming much finer laterally, the interstices impunctate, somewhat convex on the disc, perfectly flat at the sides; beneath, including the epipleuræ and propleuræ, densely punctured. Length,  $2\frac{1}{2}$ — $3\frac{1}{2}$  mm.

*Hab.*: W. AUSTRALIA, E. Wallaby I. in the Houtmann's Abrolhos Group, Fremantle, and Cape Leeuwin.

Many specimens. Of more rotundate shape than *T. aphodioides*, the elytra being relatively shorter and more rounded at the sides; the punctures of the elytral striæ finer, the inner striæ more deeply impressed at the base. The propleuræ are coarsely punctured.

TRACHYSCELIS LÆVIS, *n. sp.*

Short-ovate, castaneous or pitchy-castaneous, very shining, the antennæ, under-side and legs testaceous or fusco-testaceous; the marginal ciliæ sparse. Head and prothorax impunctate, the latter nearly three times as broad as long and with obtuse but distinct hind angles; elytra widest a little behind the middle, very finely and lightly punctate-striate on the disc, the sixth, seventh and eighth striæ obsolete or barely indicated, the punctures of the inner striæ closely placed and becoming more distinct towards the suture, the marginal stria deep, impunctate, the interstices flat, impunctate; beneath, including the epipleuræ and propleuræ, sparsely and finely, the middle of the venter densely, punctured. Length,  $2\frac{1}{2}$ —3 mm.

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\* This species is probably generically distinct.

*Hab.* : W. AUSTRALIA, Port Darwin, Cape Leeuwin, E. Wallaby I. in the Houtmann's Abrolhos Group, Cassini I., Baudin I., and Adèle I.

Found in plenty at Baudin and Adèle Islands, more sparingly elsewhere. Allied to *T. ciliaris*, but narrower; the elytra more finely and delicately punctate-striate on the disc, the outer striæ (the ninth excepted) obsolete or very indistinct; the interstices flat throughout; the under-surface and the epipleuræ more finely punctured; the propleuræ almost smooth; the marginal ciliæ sparser. Much smaller than *T. aphodioides*, with the prothorax shorter, the elytral striæ more finely and lightly punctured, and the marginal ciliæ less dense. Specimens of this and of *T. ciliaris* were found by Mr. Walker under seaweed and stones on sandy beaches, at or just below high-water mark.

*TRACHYSCELIS PALLENS*, *n. sp.*

Short-ovate, testaceous or flavo-testaceous, shining, the ventral segments usually more or less piceous; the marginal ciliæ fine and sparse. Head and prothorax impunctate; elytra short, finely striate throughout, the striæ becoming deeper towards the suture and with exceedingly fine closely placed punctures, the interstices feebly convex on the disc, flat at the sides, smooth; beneath, densely, finely punctate, the middle of the metasternum and the propleuræ almost smooth.

Length,  $2\frac{1}{2}$ — $2\frac{3}{4}$  mm.

*Hab.* : CEYLON, Colombo.

Numerous examples. Smaller and shorter than *T. aphodioides*, Latr., and testaceous in colour (the ventral segments excepted); the elytral striæ distinct throughout, and exceedingly finely punctured; the marginal ciliæ sparse.\*

Horsell, Woking :

September, 1893.

ON THE GENUS *MECEDANUM*, ERICHSON.

BY DR. D. SHARP, M.A., M.B., F.R.S.

The name *Mecedanum* was proposed by Erichson about fifty years ago, in a note on p. 274, "Naturgeschichte Ins. Deutsch.," iii, but no species has, so far as I am aware, ever been described. Some fifteen years ago I obtained a specimen from Mr. Cowan that I have little doubt belongs to the genus. As it is a highly remarkable form, of great interest in the classification of the *Colydiidæ*, I think it well to describe the species, and complete the extremely brief generic characters mentioned by Erichson.

\* Mr. G. Lewis informs me that he has also taken *T. pallens* at Colombo, and that he has a species from Japan which he proposes shortly to describe.

The antennæ are not clavate, but are of anomalous form, very broad, and increasing in width from the third to the eleventh joint; they are inserted at the sides of the head, the point of insertion being concealed by the projecting margin. The head is short, with very large eyes, which encroach greatly on the under-surface of the head; the genæ project as a sort of toothed process on each side of the mentum. The parts of the mouth can be scarcely seen, but they do not apparently possess any great peculiarity; the palpi are, however, probably unusually short.

The prothorax exhibits a most remarkable character, surpassing perhaps in interest even the genus *Nematidium*; this consists in the fact that the lower and hind part of the prosternum is formed by the junction behind the coxæ of the side pieces which meet in the mesial line; the base is further augmented by a remarkable development of the membrane, which borders the hind margin. The front coxæ look as if they were quite contiguous, but they are really separated by a lamina immersed between them, and which, behind the coxæ, expands to form a compressed prosternal process reposing on the conjoined sides. The mesosternum is unusually elongate, so that a much greater longitudinal space than is usual intervenes between the front and middle coxæ. The metasternum is very elongate, and the middle and hind coxæ are but slightly separated. There are no inflexed epipleuræ, but at the base the wing-cases are edged with a white membrane, which, at the end of the first ventral segment, gives place to a crenate margin.

I know of only two other genera that can be considered as at all "related to" *Mecedanum*, one of them is *Gempylodes*, Pascoe, which is a rather close ally, and presents a similar anomalous sternal structure, but in which the front coxæ are really contiguous. The other is the genus *Endestes*, Pascoe, but here the relation is a distant one, the front coxæ being only a little exerted, but distinctly separated, while the prosternal process reaches to the posterior margin of the epimera, which, so far as can be seen, are not conjoined, though their membranous borders meet and overlap behind the process as they do in *Gempylodes* and *Mecedanum*. This genus, however, also differs in the shorter tarsi, the basal joint of which is but little longer than the second.

These insects should, in my opinion, form a separate subfamily in *Colydiidæ*, which may be called *Gempylodini*, and characterized as follows:—

*Antennæ absque clava, extrorsum crassiores, sub frontis margine laterale*

*insertæ. Coxæ anteriores vel contiguous vel parum distantes; processu prosternali post eas extenso; membrana basalis pone processum integra. Coxæ posteriores perparum distantes. Tibiæ apice externo angulatim prominulo.*

The subfamily has some points of resemblance with *Nematidium*, which is another of the excessively elongate *Colydi*, and that no doubt, like the *Gempylodini*, enter the burrows of wood-boring insects to prey on their inhabitants, but in *Nematidium* we meet with a different form of antennæ, whose insertion also is quite distinct; while the globular front coxæ are covered by the prosternal process; the basal membrane of the *Gempylodini* being absent. *Nematidium* will have to form a separate subfamily or tribe, possessing affinities with the *Deretaphrini*.

*MECEDANUM ERICHSONI, n. sp.*

*Valde elongatum, nigrum, opacum, antennis pedibusque piceis; fortiter sculpturatum, prothorace medio latius longitudinaliter impresso; elytris subtiliter costatis, interstitiis foveolis biserialiter ornatis.*

*Long., 10 mm.; lat., 1 mm.*

Antennæ with all the joints stout, the 4th to the 10th transverse, the 11th very large, rounded at the apex, its inner edge very slightly emarginate. Head with rounded epistome, and strongly raised lateral carina, its disc slightly raised and shining, vertex much punctate. Thorax nearly three times as long as broad; the lateral margin very fine; the surface dull, coarsely and closely punctate, with a deep, very broad, groove extending from front to base. Scutellum extremely narrow, hastate. Elytra with feeble costæ, which are somewhat more strongly raised behind, and whose summits are rendered rather irregular by the insertions of a few very distinct minute setæ; the intervals of the costæ have a very coarse biserial sculpture; the apices of the elytra are so formed as to leave a deep common notch at the apex.

The only example I have seen was found in Madagascar, in the Betsileo district, by Mr. Cowan.

Cambridge: September 30th, 1893.

P.S.—Since the above was written, I have seen in Mr. Fry's collection an insect having the appearance of *Gempylodes*, but forming a quite distinct genus, having well-marked antennal grooves extending between the base of the maxillæ and the eyes. This is probably the genus *Aprostoma*, of Guérin. This genus was described in 1839, and referred to the *Brenthidæ*! Westwood, however, in the "Transactions of the Entomological Society of London" for 1869 described briefly a second species, and remarked that it was a member of the *Colydiidæ*, and not of the *Brenthidæ*.

Reitter, in the "Deutsche Ent. Zeit.," 1878, p. 120, speaking of *Aprostoma*, puts in a bracket after this name "*Mecedanum*, Erichs.,"

from which I presume he considers *Aprostoma* and *Mecedanum* to be the same. In doing this he perhaps adopted Dohrn's previous statement; but if I am correct in identifying the insect from Africa in Mr. Fry's collection with *Aprostoma*, then *Mecedanum* (as interpreted by me) and *Aprostoma* are quite distinct. *Aprostoma*, however, belongs also to the *Gemphylochini*, and what I have written is not affected if Reitter's view be correct, other than that *Mecedanum Erichsoni* would become the type of a new genus.

Westwood's identification of *Aprostoma* was made from an examination of Guérin's unique type; the insects of that genus might be supposed to have some relation to the *Brenthidæ*, but *Mecedanum Erichsoni* has the body sculptured after the fashion of *Colydium*, and could scarcely be considered by any one to have such an affinity. Until, however, we have a description of Erichson's original specimen, it is impossible to decide whether *Aprostoma* and *Mecedanum* are really the same, actual comparison of the two types being, I believe, unattainable.

*Coleoptera in Morayshire (concluded from p. 71).*—I am at length in a position to conclude the list of species of *Coleoptera* taken by me last autumn near Forres, having worked out, to the best of my ability, all those that were unfinished at the date of my previous communication (p. 68 *ante*), with the exception of a few *Staphylinidæ* and *Halticidæ*. My total list amounts to about 450 species. Having regard to the period of the year at which they were taken, this seems a large number; a collector accustomed to the northern fauna would probably have taken far more, but a large quantity of the insects (some 70 or more) were new to me, and in dealing with large numbers of small insects under such circumstances, it is impossible to avoid occasionally overlooking closely allied species.

My list includes—*Adephaga*:—*Elaphrus riparius* (a); both *Nebria brevicollis* and *Gyllenhalii* (a); *Leistus rufescens* (e); *Carabus nemoralis*, one very small specimen floating on a flood; *Cychrus rostratus*; *Dromius nigripennis* (e), fairly abundant, 4-maculatus and agilis; *Metabletus foveola*; *Dyschirius globosus* and *salinus* (b), *impunctipennis* (c), and *politus* (e); *Broscus cephalotes* (b); *Miscodera arctica* (e); all the species of *Calathus*; *Taphria nivalis* on the sandhills; *Olisthopus rotundatus* (e); *Amara acuminata*, *apricaria*, *consularis* (e), *fulva* (c), *lunicollis* (e), and a specimen (e), which working out with the books will only fit into *Quenselii*—I am really unable to say what it is; *Harpalus rubripes*; *Pterostichus verricolor*; *Bradycellus placidus*, *similis* and *harpalinus*; *Dichirotrichus pubescens* (b), both light and dark forms, the former seem chiefly female and the latter male; *Patrobus excavatus* and *assimilis*, one very stunted specimen with the frontal striation strong, taken in flood refuse; *Cilleus lateralis* (b); *Bembidium æneum* (b), *anglicanum* (a), *atrocaruleum* (a), *bipunctatum* (a), *decorum* (a), *femoratum* (a), *lunatum* (b), only one specimen at a time, *minimum* (b), *monticola* (a), *pallidipenne* (c), *paludosum* (a), in the same spot



as mentioned by Mr. Hislop in 1867, *prasinum* (a), *punctulatum* (a), *tibiale* (a); *Tachypus pallipes* (b and c); *Brychius elevatus*; *Hydroporus Davisii*, 12-pustulatus, ferrugineus, rivalis, and septentrionis, all in the Moy burn, *Agabus arcticus* (e), *guttatus*, *biguttatus* (e), *nebulosus* (d).

The *Brachelytra* taken include *Falagria sulcata* (e); *Bolitochara lunulata* (d); *Ocalea castanea*, *badia* and *latipennis* (all e); *Microglossa pulla* or *nidicola* (e); *Aleochara lanuginosa*, *morion*, *nitida* and var. *bilineata*, and *obscura* (all d), the latter occurred in large numbers in a dead conger-eel on the coast, right away the farther side of the sandhills. Some specimens of an *Aleochara* also turned up in fungus on the sandhills, apparently belonging to the form of *A. mæsta* with reddish elytra. I also took one specimen of the very rare subgenus *Aleochara*, Er., but having been unable to secure types, I cannot say whether it is *spadicea* or *procera*. *Tachyusa umbratica*; *Chilopora longitarsis* in great numbers and *rubicunda* (both e); *Oxyptera rupicola*, *umbrata*, *annularis*, *opaca* (e), in great numbers, *alternans* (d); *Mycetoporus splendidus*, *lepidus*, *longulus*? (all e); *Myllæna brevicornis*; *Homalota cambrica*, *elongatula*, *fusca*, *gregaria*, *halobrechtha*, *insecta*, *lavana* (?), *longicornis*, *luridipennis*, *melanaria*, *muscorum*, *nigra*, *parva*, *sericea*, *vestita*, *vicina*, and (I believe) *valida*; *Encephalus complicans* (e), one only; *Gyrotheca affinis* and *nana* (d); *Diglossa mersa* (b), both winged and apterous; I came to the conclusion that this insect lives in burrows of *Bledius arenarius* below high water mark along the Findhorn estuary. Some of the specimens with the wings fully developed have the elytra much longer than others. I notice there is a winged species referred to in Canon Fowler's *Coleoptera* as *submarina*, and said to have been taken in Ireland; I strongly suspect that these specimens belonged to the winged form of *mersa*. That *mersa* is not always apterous appears from the note to the species in Canon Fowler's book, in truth, I think all the specimens have rudimentary wings; the winged form with long elytra, which was very scarce at Forres, has certainly a somewhat different appearance from the type, but I think that it is only a race or variety. *Tachinus collaris* (e), *flavipes*, one specimen, *humeralis*, *laticollis*, and *subterraneus* (d), with the light humeral spots much shorter than in the common form; *Conurus lividus*; *Bolitobius analis*, *atricapillus*, *pygmaeus*, and *trinotatus* (all d); *Euryporus picipes* (e), two specimens; *Quedius lateralis* (d), in cod's head bait, also *Quedius molochinus* and *puncticollis* (d), in wasp's nest, as already recorded by me; *Xantholinus glabratus*; *Philonthus laminatus* (e), *decorus*, *politus*, *proximus*, *varius*, *ebeninus*, *stomatarius*, *nigriventris*, *varians*, *puella*, *quisquiliarius* or *ventralis*, and *xantholoma*; *Dianous cærulescens* (e); *Stenus conaliculatus*, *foveicollis* (?), *guttula* (e), *Guynemeri* (a), under refuse, *ossium*, *paganus*, *picipes*, *pusillus*; *Bledius arenarius*, *fuscipes*, *spectabilis* (d), *subterraneus*, *opacus*, *longulus*, and *pallipes* (?) (e), and a specimen I refer to *erraticus*, but as to which I am doubtful, never having seen a type; *Ancyrophorus omalinus* and *aureus*; *Antihopagus nigritus* (e), and *testaceus* (d); apparently all the species of *Lesteva*.

Of the succeeding groups of beetles I may mention—*Scymnus suturalis* and *limbatus*; *Otiorhynchus hamatopus*; *Cryptohypnus maritimus* (e), *riparius* (o), and 4-*guttatus* (a and e), the latter species occurred in two large colonies on the Findhorn banks; I took a large number of specimens, hoping to find both *dermestoides* and 4-*guttatus*. I have every possible variation in the way of spots, and in some specimens the spots are wanting. An examination of the male characters shows,

however, that the insects clearly all belong to the same species. The characters appear to me to agree with a type of *C. 4-guttatus*, named by Dr. Horn in Mr. Champion's collection, so that it would seem to follow, that if *C. 4-guttatus* and *C. dermestoides* are really distinct, there are unspotted forms of *4-guttatus* as well as spotted forms of *dermestoides*, and the males alone are capable of being separated; *Malthodes mysticus* (d), I am somewhat doubtful about this insect; *Cyphon variabilis*, *padi*, and *coarctatus*; *Anaspis melanopa* (d); *Orchesia minor* (c); *Tetratoma fungorum* (e); *Salpingus castaneus* and *aratus* (e); *Rhinosimus ruficollis* (e); *Aphodius porcus*, one in flood refuse, *rufescens*, one at Kincorth; *A. merdarius* was the commonest species of the genus, so far as I was concerned; *Egialia sabuleti* occurred fairly commonly (d and e); *Serica brunnea* (e).

The *Longicorns* include only *Rhagium bifasciatum* near Forres, and *Pogonocherus dentatus* (e), which latter insect I took in the beginning of October, a time at which I have also found it in the New Forest. The occurrence of this insect in Scotland has been doubted (*vide* Fowler's *Coleoptera*, vol. iv, p. 247). I am glad to be able to confirm its occurrence, though I only took a single specimen, and that in flood refuse.

The *Phytophaga* conclude the list. *Chrysomela marginata*, two specimens in flood refuse, one in a flood at the end of August, and the other in October; *C. staphylea* was very common under seaweed (b), some of the specimens being unusually dull in appearance; *Zeugophora Turneri* (e); *Lina aenea* (e), one specimen only; *Gonioctena litura* (d), common on broom, and *pallida* (e); *Cryptocephalus labiatus* (d); *Crepidodera Modeeri*; *Mantura rustica*; both *Sphaeroderma*; *Mniophila muscorum*.

In some cases I am unable to give precise localities, but, where possible, I have added letters with the meaning attached to them, as explained at page 72 of this volume.—A. J. CHITTY, 33, Queen's Gate Gardens, S.W.: *September*, 1893.

*Chrysomela gættigensis*.—In his note on this species (*Ent. Mo. Mag.*, p. 238) the Rev. T. A. Marshall asks why the insect is retained in *Chrysomela*, instead of in *Timarcha*? The simple reason is, that in *Chrysomela* proper the anterior coxal cavities are open, while they are closed in the genus *Timarcha*; moreover, in the latter genus the posterior legs are much more widely separated than in *Chrysomela*, besides other minor differences. *C. gættigensis* is therefore a true *Chrysomela*.—MARTIN JACOBY, 7, Hemstall Road, West Hampstead: *October*, 1893.

*Apion variegatum*, Wencker.—M. Fauvel has recently sent me some specimens of this species from Calvados, Normandy, remarking that it ought to be found in Britain. *A. variegatum* lives upon the mistletoe (*Viscum album*), and it is the only weevil mentioned by Bedel (*Faune Col. Bassin de la Seine*, vi) as living upon that plant. It will be remembered that *Anthocoris visci* has only recently been added to the British list. Perhaps Dr. Chapman or some other collector living in the West of England may eventually discover the beetle here, if they search for it. *A. variegatum* is placed by Bedel between *A. fuscirostre* and *A. vernale*. The insect is very different from any of our British species; it may easily be known by its pubescent fasciate elytra.—G. C. CHAMPION, Horsell, Woking: *October 14th*, 1893.

*Niptus hololeucus*.—I have read with interest Dr. Mason's remarks on *N. hololeucus* in this month's Magazine. Only a few days ago I received a large number of specimens of this insect from a spice broker, who informed me that they infested ginger. I have never before succeeded in getting more than an odd specimen now and then. Probably they were introduced into the house Dr. Mason refers to in some article of this kind.—R. W. LLOYD, St. Cuthbert's, Nightingale Lane, S.W.—October 3rd, 1893.

*Early appearance of Argynnis Paphia and Vanessa Atalanta, and second broods*.—*Argynnis Paphia* appeared here this summer as early as June 17th; the earliest date I have recorded previously for it is June 28th, 1820. In 1879 it was still on the wing on August 30th. *Vanessa Atalanta* usually does not appear till September is well in, but this year it appeared as early as July 25th, and has continued out in fair numbers. Several hibernated specimens were on the wing during April and May. The second broods of *Polyommatus Icarus* and *Chrysophanus Phlæas* appeared in the first week of July, and what I take to be a third brood is now out. *Leucoptasia sinapis*, second brood appeared on July 6th, and *Thanaos Tages*, second brood on August 5th. I hear that second broods of *Argynnis Euphrosyne* and *Selene* appeared in West Devon the last week of July.—C. W. DALE, Glanvilles Wootton: August 26th, 1893.

*Colias Edusa, &c., in South Devon*.—I have just returned from Exmouth, S. Devon, where, during the month of September, *C. Edusa* was very abundant, and, for the most part, in good condition. My son captured three of the var. *Helice*, two fine and one poor, the latter with hind-wings remarkably dark. The season was too far advanced for *Lepidoptera* generally; the most abundant species was *Botys asinialis*, of which we captured a long series. I saw a *Callimorpha Hera* in a working man's collection, taken by himself, at the beginning of September, in a mangold field near Exeter. I tried to "trade," but the intelligent son of toil was obdurate, so I left it, amongst a lot of common things, in a black lead box, doubtless a prey to some enterprising *Lermestes*.—LOVELL KEAYS, 26, Charles Street, St. James's: September 30th, 1893.

*Catocala promissa at West Wickham*.—I captured at sugar at West Wickham Wood two specimens (both females) of *Catocala promissa* on August 19th. The occurrence of this species within the metropolitan area may prove of interest. *C. nupta* was abundant on the same evening.—F. J. ROBINSON, Jun., Surrey Cottage, Water Lane, Brixton, S.W.: September 1st, 1893.

*Hymenoptera and Hemiptera in June, 1893, at Saunton Sands, N. Devon and Morthoe*.—*Myrmosa melanocephala*, ♀, *Methoca ichneumonides*, ♀, *Tiphia femorata*, ♂ ♀, *Pompilus rufipes*, Braunton Burrows; *P. plumbeus*, ♂ ♀, Woolacombe Sands. *Tachytes pectinipes*, ♀. *Ammophila hirsuta*, Saunton Cliffs. *Harpactus tumidus*, ♀, about burrows of *Andrena nigriceps*, Bullpoint, near Morthoe. *Nysson dimidiatus*, ♀, on *umbellifer*, Saunton. *Cerceris arenaria*, ♂ ♀, Saunton Cliffs and Morthoe. *Crabro (Entomognathus) brevis*, ♀, Saunton Cliffs; *C. cribrarius*, ♂ ♀, Saunton Court, near Morthoe; *C. 4-maculatus*, Saunton Court. *Oxybelus mandibularis*, ♂ ♀, Saunton, on thistle; *O. uniglumis*, Braunton Burrows and Morthoe.

*Vespa germanica*, Branton Burrows; *V. norvegica*, ♂ ♀, Morte Point. *Colletes succincta*, Morte Point and Saunton Cliff; *C. fodiens*, Saunton Cliff. *Prosopis hyalinata*, ♀, *Halictus Smeathmanellus*, ♀, burrowing on roadside, Branton. *Andrena nigriceps*, ♀, burrowing on roadside, near Bullpoint; *A. coitana*, ♂, on *Verbascum thapsus*, Bullpoint. *Dasypoda hirtipes*, ♂, on thistle, Saunton. *Cilissa leporina*, ♂ ♀, near Saunton Court. *Panurgus calcaratus*, Saunton Hotel Grounds; *P. ursinus*, *Nomada jacobææ*, ♂ ♀, Branton Burrows; *N. solidaginis*, ♀, entering burrows of *A. nigriceps*. *Epeolus productus*, ♂ ♀, Saunton Sands. *Calioxys vectis*, ♂ ♀, *Megachile maritima*, ♂ ♀, Saunton Sands and Cliff; *M. centuncularis*, ♀, Saunton. *Chelostoma florisomne*, ♀, on *Ranunculus*, Saunton. *Osmia carulescens*, ♀, Saunton Hotel. *Saropoda bimaculata*, most abundant, Saunton. *Bombus sylvarum*, ♀, Georgeham.

*Calyptonotus pini*, one in ant's nest, one on sandhills. *Rhyarochromus pratensis*, sandhills. *Pseudophlaeus Fallenii*. *Carpocoris baccarum*. *Verlusia rhombea*. *Stygnus arenarius*. *Monanthia cardui*.—H. SWALE, Tavistock: September, 1893.

*Methoca ichneumonides*, Latr., at Bexhill.—The ♀ of this usually rare species occurred in some numbers at Bexhill during August of this year, but the majority of specimens taken were smaller and much darker than the normal form, some of them being almost black; it would be interesting to know if this variation is in any way connected with the long dry summer of 1893. At Mr. Saunders' request I spent a considerable time in watching these curious sand-wasps, with the hope of throwing some light on their habits; but although I closely shadowed many individuals at different times, I had no success. One fine dark specimen in particular led me up and down a hot sand-bank for some 25 minutes, covering over 10 yards, till the sun pouring down on the back of one's neck, made it a positive relief when she finally disappeared in the long grass on the top of the bank; she never entered the burrows of any bee, and never captured anything, but with her antennæ constantly in motion moved in rapid zigzags with occasional short rests, as convenient tufts of grass afforded shelter. She was extremely sensitive to any local disturbance, caused by shifting one's position, however carefully, so much so, indeed, that it seemed almost like appreciating sound without earth tremors; she also took instant alarm if one's shadow fell across her path. A few *Halicti* of several species (chiefly *rubicundus*) frequented the same spots as *Methoca*, but were not in sufficient evidence to even suggest any association between them. The ♂, though carefully looked for, I did not succeed in finding. Mr. McLachlan (for whose views of a close time and never doing a rare species to death I have the utmost respect and appreciation) may be glad to hear that the specimens I watched I did not capture, but passed free of the collecting bottle.—G. A. JAMES ROTHNEY, 15, Versailles Road, Anerley: September 9th, 1893.

[I have not sufficient knowledge of the habits of *Methoca* to enable me to form any opinion as to the advisability or otherwise of moderation in collecting. I find there is some amount of popular misapprehension current as to the scope of my suggestions. As the title indicated, they concerned British *Butterflies*, and I had one species especially in view, viz., *Lycana Arion*. Given one of the restricted

localities for this insect, bright sunshine, and one or two active collectors, it would not be difficult in the course of a few hours to exterminate *every individual* specimen of the insect that might be then present in the perfect state.—R. McLACHLAN].

*Galls of Biorhiza aptera on Betula*.—I have just received for determination from Mr. T. W. Sanders, editor of "Amateur Gardening," living examples of this insect, accompanied by portions of the gall from which they emerged, and leaves of the tree, which had been sent to him from near Edenbridge. The galls were indicated as found at the roots of a *birch*. I think this is quite a new plant for the well-known "oak root-gall maker." In Mr. Cameron's new vol. (iv) of British Phytophagous *Hymenoptera* (recently issued by the Ray Society) it is stated (p. 13) that it has been found at roots of beech, and even of firs; but anything else than oak must be looked upon as exceptional. Cameron terms the "collective" insect "*Biorhiza terminalis*," the spring oak-apple form being *Teras terminalis*. For the sake of clearness I have retained for the root form the name under which it is best known.—R. McLACHLAN, Lewisham, London: October 7th, 1893. .

*Drepanopteryx phalænoides* at Pitlochry.—On August 29th, 1892, I beat out a single specimen of this species from a birch at Pitlochry. This may be worthy of record, and especially on account of the northern locality.—ALFRED BEAUMONT, 153, Hither Green Lane, Lewisham: October 9th, 1893.

*Micromus aphidivorus* in Co. Wexford.—At the end of August, 1893, at Courtown, and early in September at Enniscorthy, I captured several examples of this somewhat rare Hemerobid. I am indebted to Mr. McLachlan for the identification.—ID.

[Mr. King, in his List of the *Neuroptera* of Ireland, records this species from Co. Kerry. That is the only other record of the species, as Irish, known to me.—R. McL.]

*Pulvinaria vitis*.—Last week, on the old wood of a grape-vine which is trained up the outside of a house near here, I saw some scales of *Pulvinaria vitis*, of this year's brood, but, although still surmounting the white ovisac, they were wrinkled, distorted, and useless. Next year, *diis faventibus*, I hope to obtain, in the month of May, some of their progeny in good condition.

I have heard of the annual appearance of this *Coccid* on another old vine growing out of doors in this neighbourhood, and I once received several scales taken from a vine at Hertford, so that the species is considerably distributed.

In the old "Transactions of the Entomological Society," vol. i, p. 297 (1812), A. H. Haworth records the finding of this *Coccid* on a "forced vine in his garden," and adds that, "happily for us, this destructive insect is extremely rare in England; it does not appear to have been described before, except by Gilbert White alone, in his 'Natural History of Selborne' (1781);" from which work is quoted White's account of his finding on a vine growing on the walls of his house quantities of the *Coccus vitis vinifera*, of Linnæus, "which did not appear to have been at all checked by the preceding winter, which had been uncommonly severe."—J. W. DOUGLAS, 153, Lewisham Road, S.E.: September 28th, 1893.

## Reviews.

**FURTHER COCCID NOTES:** with Descriptions of New Species from Australia, India, Sandwich Islands, Demerara, and South Pacific. By W. M. MASKELL, Corr. Member of Roy. Society of South Australia, Registrar of the University of New Zealand. 8vo, pp. 199—252, 8 plates. Wellington. 1893. (Extract from the Transactions of N. Z. Institute, vol. xxiv.)

This is the annual report by Mr. Maskell, in his usual masterly manner, and contains notes on several *Coccids* previously described, and descriptions of more than thirty new species, together with illustrative figures by himself. A large number of the insects were obtained by Mr. Koebele during his two tours on behalf of the Agricultural Department of the United States, "in search of beneficial insects;" that is, of species parasitic on others which are destructive to plants and crops. One result was that *Vedalia cardinalis*, introduced thus into California in 1888, in two or three years' time practically cleared that state of the enormously injurious *Icerya Purchasi*; and in 1892 a large number of the natural insect-enemies of other pests, such as *Aspidiotus aurantii*, on orange and lemon trees, and *Lecanium oleæ*, on various plants, were discovered and sent to America; it is hoped and expected that the result will be as useful as that of the previous expedition. It is also stated that in his last journey Mr. Koebele took with him to New Zealand some of the predaceous insects known to be very useful in America, such as lady-birds, *Syrphidae*, lace-wings, and larvæ of *Rhaphidia*, but it cannot yet be determined with what effect.

"It is satisfactory," says the author, "to note that since 1870 the number of Homopterologists has been steadily increasing. Some of them have turned their attention chiefly to the economic relations of the *Homoptera* to agriculture, others confine themselves to the purely scientific side of entomology." In any case, science is to be congratulated on the increased number of students.

**OUR HOUSEHOLD INSECTS:** an account of the Insect Pests found in dwelling houses. By EDWARD A. BUTLER, B.A., B.Sc. (Lond.). Pp. 344, 8vo. London: Longman, Green, & Co. 1893.

The scope of this work is sufficiently indicated by its title. We can thoroughly recommend it as being far and above superior to the majority of popular books on subjects pertaining to Entomology. It is a reprint of a series of articles that originally appeared in a popular scientific journal, and much of the matter is the result of original observation by a competent observer. Most of the numerous illustrations are also original. Some of these, although perfectly characteristic, are coarse in execution, and in this respect not equal to the clear type and excellent paper of the reprint.

**FAUNA AND FLORA OF NORFOLK: COLEOPTERA:** by JAMES EDWARDS, F.E.S. Reprinted from the Transactions of the Norfolk and Norwich Naturalists' Society, vol. v. 1893.

This is one of the best and most important of the county lists of *Coleoptera* yet issued, as may be judged from the fact that it contains more than half of the species recorded as British. Mr. Edwards is well known as an accurate worker, and he has been most careful to verify his localities. The introduction contains an in-

teresting account of the early Norfolk collectors, and the Catalogue concludes with an exhaustive comparative list of the number of species in every Family found in Britain and Norfolk respectively. Among the best represented Families are the *Carabidæ*, with 183 out of 303; the *Dytiscidæ*, with 76 out of 105; the *Elateridæ*, with 31 out of 57; and the *Chrysomelidæ*, with 165 out of 244: nor must we forget to note the *Pselaphidæ* and *Scydmanidæ*, which, owing to the researches of Burrell and others, reach a total of 30 out of 55, which has probably not hitherto been beaten for any other district in Britain. The list will be indispensable to any collector in the south-eastern counties.

## Societies.

**BIRMINGHAM ENTOMOLOGICAL SOCIETY:** *September 18th, 1893.*—Mr. R. C. BRADLEY in the Chair.

The following were exhibited:—By Mr. W. Harrison, a nest of *Bombus lapidarius*, from which he had bred males, females and workers. By Mr. G. W. Wynn, a specimen of *Vanessa urticæ*, in which the usual yellow markings were replaced by white ones, also the space between the black marks on the costa, and other parts of the ground-colour, were also replaced by white. By Mr. R. C. Bradley, a small collection of *Lepidoptera* made at Weymouth this year, and including *Sesia ichneumoniformis*. By Mr. P. W. Abbott, a number of *Noctuæ* taken at Sutton this year, including *Ayrota obelisca* and *Xanthia gilvago*, both new to the district. Mr. C. J. Wainwright read a paper on the local list of *Lepidoptera*, which he had written mainly to attract attention to those groups least represented in the list, in order that blanks might be filled up.

*October 16th.*—Mr. R. C. BRADLEY in the Chair.

Mr. G. W. Wynn showed some large *Bombycidæ* from North America, also a few other insects, including *Hadena genistæ* from Wyre. Mr. R. C. Bradley read a paper describing the Society's Excursion to the Cotswolds last Whitsuntide; he showed a number of his captures, and Messrs. A. H. Martineau, H. J. Sands, and C. J. Wainwright showed theirs. The best captures were among the *Diptera*, some good *Hymenoptera* and *Lepidoptera* also being taken, the latter including nice series of *Lycæna Adonis* and *Ino Geryon*.—COLBEAN J. WAINWRIGHT, *Hon. Secretary*.

**LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY:** *October 9th, 1893.*—Mr. S. J. CAPPEE, F.L.S., President, in the Chair.

The Rev. R. Freeman, 6, Station Road, Prescott, was elected a Member of the Society.

Dr. J. W. Ellis read an interesting letter from a correspondent in Grahamstown, South Africa, giving descriptions of the habits of some species of *Coleoptera* from that district. Dr. Ellis showed a large number of species illustrative of the letter he had received; Mr. Crabtree showed *Hydrelia unca* from Ulverston, and *Arctia lubricipeda*, var. *radiata*; Mr. Stott, on behalf of Mr. H. S. Clarke, of Douglas, a number of *Lepidoptera* from the Isle of Man; Mr. Gregson, fine series of *Abraxas grossulariata* and banded forms of *Vanessa urticæ*, bred by him this year; the President, a grand series of *Boarmia roboraria*, including a pair of black forms from Coventry; Mr. Jones, a variable series of *Bombyx trifolii*; Mr. Sharp, examples of

melanic *Coleoptera*, which he stated had been unusually plentiful this year, which went against the theory of damp producing melanism; and Mr. Harker, a specimen of *Dasypolia Templi*, captured in the heart of Liverpool.—F. N. PIERCE, *Hon. Sec.*, 7, The Elms, Dingle, Liverpool.

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THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: September 28th, 1893.—J. JENNER WEIR, Esq., F.L.S., President, in the Chair.

Mr. South exhibited, on behalf of Mr. Sabine, some fine varieties of *Polyommatus Phlaeas*, L., from Dartford, one being intermediate between the type and the var. *Schmidtii*, some of the others being very dark. Mr. Frohawk exhibited two boxes of the same species from Balham, &c., showing great variation in size and markings, two examples approaching the var. *Schmidtii*, and two without copper bands on the secondaries; also a living pupa of *Argynnis Paphia*, L., and a nearly full grown larva of *A. Adippe*, L., these two latter exhibits being a result of the phenomenally fine and hot weather. Mr. Jager showed six specimens of *Lycæna Arion*, L., captured by Mr. Bignell in Cornwall last June. Mr. Fenn exhibited a series of *Dasycampa rubiginea*, Fb., bred September, 1893, from Devonshire, also long and variable series of *Acidalia aversata*, L., *Acronycta rumicis*, L., and interesting varieties of other species. Mr. J. H. Carpenter exhibited a second brood of *Argynnis Euphrosyne*, L., the larvae, after apparently commencing to hibernate, having rapidly fed up during August. Mr. R. Adkin exhibited a series of *Cymatophora duplaris*, L., taken in Sutherlandshire, they being very dark compared to the southern forms. A paper by Mr. F. W. Hawes was then read, "On the unusual abundance of *Polyommatus Phlaeas* in 1893," in which he reviewed the early appearance of this species in April, and its gradual numerical increase during the succeeding months, also noting some interesting points in its life-history, the paper being illustrated by the exhibition of two plants of *Rumex acetosa*, having thereon a number of ova laid in a state of nature, some few of which had recently hatched.—H. WILLIAMS, *Hon. Secretary*.

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ENTOMOLOGICAL SOCIETY OF LONDON: October 4th, 1893.—HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

Mr. Arthur Ernest Gibbs, F.L.S., of The Hollies, St. Albans, was elected a Fellow of the Society.

Mr. F. Merrifield exhibited specimens showing the effects of temperature in the pupal stage on several species of *Lepidoptera*. *Vanessa polychloros* was much darkened, especially towards the hinder margin, by a low temperature. *Vanessa c-album* showed effects on both sides, especially in the female; they were striking on the under-side. Several examples of the striking effect produced by temperature on the summer emergence (*Prorsa*) of *Araschnia Levana* were exhibited. Some *Vanessa Io* showed the gradual disintegration, by exposure to a low temperature, of the ocellus on the fore-wing, which in the extreme specimens ceased to be an ocellus, and was a remarkable confirmation of Dr. Dixey's views of the origin of that ocellus. Mr. Goss stated that in his experience of *V. c-album*, the form with the pale under-side was the first brood, occurring in June and July; and that the second brood, occurring from the end of July to October, was invariably dark on the under-side. Mr. Jacoby, Mr. Merrifield, and the President continued the discussion.

Mr. A. H. Jones exhibited *Lepidoptera* collected in Corsica in June last, in-



cluding dark forms of *Polyommatus Phlœas*; *Lycœna Astrarche*, in which the orange marginal band is very brilliant on upper and under-sides of both wings; *Lycœna Argus*, the females of which are much suffused with blue, probably var. *Calliopis*; a series of *Vanessa urticae*, var. *Ichnusa*, bred from larvæ found at Vizzavona (4000 feet); and many others.

Mr. G. C. Champion exhibited, for Mr. G. A. J. Rothney, a number of *Methoca ichneumonides*, Latr. (female), taken at Bexhill, Sussex, showing great variation from the usual large black and red form to a small and nearly black one.

Dr. D. Sharp exhibited a pupa of *Galleria melonella*, on which the eggs of a parasitic Hymenopteron (as he believed) had been deposited while the insect was in the cocoon. He also exhibited, from the collection of Alexander Fry, Esq., the hitherto unique *Aprostoma planifrons*, Westw. The genus was correctly assigned by Westwood to the *Colydiidæ*, though described as a *Brenthid*.

Mr. J. J. Walker exhibited the following species of *Halobates*, viz., *H. sericeus*, Esch., from the Pacific; *H. sobrinus*, B. White, from the Marquesas Islands; *H. Wüllerstorffi*, Esch., from the Marquesas Islands; *H. princeps*, White, from the China Sea; and a female of *H. Wüllerstorffi* with ova attached.

Mr. W. H. B. Fletcher showed a variable series of seventy-five *Cymatophora or*, bred in 1893 from larvæ from Sutherland, a series of about forty *C. ocularis* bred-in from stock from Oundle. Also a series of thirty-three moths, all females, supposed to be hybrids between *C. ocularis* male and *C. or* female, from the above stock in each case, bred as a second brood in August and September, 1893. The supposed hybrids resembled the female parent, except that both orbicular and reniform stigmata were very conspicuous, whereas in *C. or* they are usually inconspicuous and the orbicular are sometimes wanting.

Mr. F. J. Hanbury exhibited a specimen of *Leucania vitellina*, taken at Brockenhurst on August 24th, 1893, by Mrs. Hanbury, and another taken by himself at Freshwater, Isle of Wight, on September 7th; also an extraordinary *Gonepteryx rhamni*, showing red blotches at the tips of the fore-wings, taken by a gardener at Walthamstow, Essex.

Mr. C. G. Barrett exhibited a gynandrous *Argynnis Paphia*, recently taken in the New Forest by Mr. Cardew.

Mr. J. M. Adye exhibited a specimen of *Deilephila livornica* recently caught at Christchurch, Hants.

Mr. Elwes exhibited and described two species of the genus *Ensis* (*Chionobas*, Bdv.), *Æ. Beani* and *Æ. Alberta*, from North America, which had not been previously described, and stated that he had prepared, with Mr. Edwards' assistance, a revision of this very difficult genus, which would be read at the November Meeting.

Mr. Osbert Salvin communicated a paper, entitled, "Description of a new genus and species (*Baronia brevicornis*) of *Papilionidæ* from Mexico," and exhibited both sexes.

Dr. Sharp read a paper, entitled, "On the Cost and Value of Insect Collections." Mr. W. F. H. Blandford, Mr. McLachlan, Mr. Jacoby, Mr. Waterhouse, and the President, took part in the discussion which ensued.

Professor Auguste Forel communicated a paper, entitled, "Formicides de l'Antille St. Vincent, récoltées par Mons. H. H. Smith."

Mr. W. F. H. Blandford read a paper, entitled, "Description of a New Sub-family of the *Scolytidæ*." The President, Mr. Jacoby, and Mr. Waterhouse took part in the discussion which ensued.—H. Goss, Hon. Secretary.

NOTES ON THE EARLIER STAGES OF THE *NEPTICULÆ*,  
WITH A VIEW TO THEIR BETTER RECOGNITION AT THIS PERIOD  
OF THEIR LIFE.

BY JOHN H. WOOD, M. B.

(continued from page 201).

THE MINE AND ITS CONTENTS—THE FRASS.

With the egg, position was everything, but in the case of the mine the particular part occupied by it is of quite secondary importance, though not to be disregarded altogether. For the position of the mine of *apicella* at the foot of the aspen leaf is diagnostic of that species; so too is the small blotch, projecting from the side of the midrib into the blade of the willow leaf, diagnostic of *intimella*. *Subbimaculella* is also very constant in its site, being found, almost invariably, in one of the angles of the midrib, and for a most interesting reason, to which I may probably refer later on. Then we always look for *regiella* and *ignobilella* on the margins, and should view any specimen with suspicion that occurred in the body of the leaf. Besides, there are a few species which have their predilection for some particular part without actually confining themselves to it. For instance, *marginicolella* is especially fond, as its name implies, of the margin; *tityrella* usually keeps to the narrow space marked off by two adjacent ribs, and so, nine times out of ten, may be distinguished at a glance from *fulgens*, without our having to resort to nicer and more critical distinctions. Still, when all is said, I do not suppose it is a character on which we can often place much reliance, but it may be useful in a rough sort of way, and being so very obvious, whatever value it possesses can be seized at once. I should add that the mines are always on the upper side of the leaf, and even when the egg is laid below, the mine comes up almost at once as if the larva were in a hurry to get to the brighter and sunnier side.

But if position is of comparatively little importance, far otherwise is it with the characters of the mine itself. The first point to be considered is its general form. Is it a gallery or a blotch, or a compound of the two, like the mine of *angulifasciella*? Yet, in reality, when we come to look closely, every blotch mine, with only one exception that I know of, is discovered to be of this composite nature and to start at first as a gallery, not always engrossing a large share of the structure as in *angulifasciella*, but limited, it may be, to so small and inconspicuous a part of it, as almost to be passed over at first sight. Nevertheless, there it is. Sometimes long and hair-like;

at others short and twisting, and hidden away in a corner of the blotch, as happens in *woolhopiella*. Hence it would appear that the gallery was the primitive form, and that the blotch came as an after-development, a view that is strengthened by other considerations as well. The so-called vermiform mines, which form blotch-like patches on the leaves, are galleries, folded back upon themselves over and over again in a series of coils. They owe their form to the circumstance that the larva confines its operation to the narrow space bounded by two parallel ribs, for as soon as it is brought up by the rib on one side, it turns sharp round until brought up again by the rib on the other side, and so on backwards and forwards in this zigzag fashion. Usually strips of tissue are left between the coils, but occasionally the latter intercommunicate freely, and the mine might very well pass for a blotch, were it not that the broad and winding frass-track still remained to indicate its true nature. That some blotches may have originated from these vermiform mines seems likely enough, though probably most of them are merely the natural development of that tendency which some galleries have to widen rapidly and out of all proportion to the growth of the larva, so that it is sometimes hard to decide whether they shall be called galleries or blotches. I alluded just now to one blotch, in which no sign of a gallery can be detected. This is the mine of *argentipedella*. It is more or less circular in shape, with a central black spot, under which the larva lies curled up a large part of its time, only coming out to eat at intervals, and is in consequence a long time feeding up; in all which particulars the habits are rather those of a *Tischeria* than of a *Nepticula*.

Now for a word about the galleries. They may be subdivided into wide and narrow galleries, of which the latter is by far the more numerous class. Then the kind of course they pursue is of importance; whether fairly straight, in which case the mine commonly runs alongside a rib; or curving and twisting, of which the vermiform mine already described is the most striking form. Neither must the manner of their commencement be neglected, for even here useful distinctions are to be found. In some species it is long and hair-like, in others again short and coarse; and whilst in some the mine will strike out at once boldly from the site of the egg, in others it curls and twists about in its vicinity, and often forms little bunches of convolutions, in the coils of which islets of leafy tissue are caught, and being cut off from the general circulation, quickly die, so that the mine seems to start from a brown dead patch in the leaf; of which *continuella* offers a good example. But of all the characters of the gallery none

perhaps are more valuable or handy than those derivable from the arrangement of the frass. Moreover, they are of especial interest as illustrating the effect of physical conditions on the habits of an insect, for there can scarcely be a doubt that the various forms of frass arrangement are governed in the main by the transverse capacity of the mine, as this is determined partly by the breadth of the mine, and partly by the extent to which the parenchyma is removed.

What we find, therefore, is this. Where the mine is capacious, as it must be in a wide gallery, or even in one only moderately wide, provided the parenchyma has been freely removed, the larva finding abundance of room and the walls of its mine easy of distension, packs its frass behind it, pellet upon pellet, in a narrow continuous track down the middle of the mine. But if its capacity be restricted or the tension of its walls increased, either from want of breadth or from a thick layer of parenchyma left in its floor, the larva can no longer heap pellet upon pellet in the former labour-saving way, but is obliged to turn the end of its body first in this direction and then in that, and seek a vacant spot for each separate grain, so that the frass gets generally distributed over the mine. In the one case a broad free space is left at the sides of the mine, in the other none at all or next to none. Now, these two modes of disposal have long been recognised and turned to good account, but there is a third mode, or rather a form of the last mentioned one, that appears to have escaped notice, and is yet of more than usual interest as illustrating in a high degree the principle which I have suggested is at the bottom of the whole question. It is found in greatest perfection where the mine is either very narrow or very shallow. Under such circumstances space being none too plentiful, economy in its use becomes a necessity, and just as under like conditions in every day life experience teaches us that this can only be accomplished by the employment of order and method, so the larva seems to have learnt the lesson also, and instead of scattering its frass incontinently over the mine deposits the individual grains with the nicest precision, side by side in slightly curved rows across the mine. Indeed, I do not think it would be possible to take up a mine of *continuella*, of *basiguttella*, or of *distinguenda*, stuffed often as full as it can hold, without being struck with the singular beauty of the arrangement, and being at the same time convinced that by no other means could the frass have been successfully packed away. From the resemblance of the superimposed rows to the coils of a spring, I shall speak of it as the "coil arrangement," or of the frass as "coiled."

Three forms, then, of frass arrangement may be recognised:— (1) collected into a central thread, with a wide free margin on either side; (2) scattered irregularly over the mine, with comparatively little or no margin; (3) arranged in regular rows from side to side, or, as I propose to term it, “coiled.” The larva, however, does not by any means limit itself to one form, for it will deposit its frass after one fashion in one part of its mine, and after another in another part, the change generally indicating that a moult has taken place. And here naturally comes the question, how often does the *Nepticula* larva change its skin? Looking at the size of the objects, the enquiry is one of much delicacy, so much so, indeed, that for a long time I quite overlooked the first moult. Three ways of proceeding seemed open to one. One was to follow an individual larva through its whole life, and to count the number of times it lay up. In most species an opportunity of doing this would be purely accidental, for I can scarcely imagine the patience requisite to search for a *Nepticula* larva just hatched, but there are a species or two that stain the leaf directly they begin to burrow, of which *angulifasciella* is one, and by looking for its little purple spots in the rose leaves it is comparatively easy to catch it immediately after it has begun to mine. The second method was to compare together different individuals of a species at all ages, and to reckon the number of moults from the number of sizes in the head. Here again *angulifasciella* is a convenient species, for however small may be the mine of most other species we are likely to drop on, the first moult will probably have been passed, and in that case the only plan left to ascertain the existence of this moult is to open the mine and search for the cast head among the *débris*—a troublesome proceeding, which I have been contented to undertake in *subbimaculella* and *fulgens* only. The other possible method was, it seemed to me, to note the characters of different parts of the mine, and so to cut it up into segments answering to the stages or skins of the larva. An excellent plan in some respects, but misleading, because it took no account of the first moult, and consequently broke up the mine into three portions only instead of into four. By these methods, separate or combined, I have examined many species so far as to ascertain, and at the same time allocate, the last two moults, but in only the three species, *angulifasciella*, *subbimaculella*, and *fulgens*, have I carried the examination to the point of demonstrating the existence of the other or primary moult. When examining the heads, I made use of a compound microscope with  $\frac{1}{4}$  inch objective, and I found that the four sizes might be roughly represented thus—the length of the first

head about one-sixth the diameter of the field, that of the second head about one-fourth, of the third about one-half, and of the fourth and last as nearly as possible a full diameter. Hence, with the aid of this scale, the existence of an early and otherwise unsuspected moult may be almost as conclusively proved as if the tiny head were actually in the field before one; and since I have in this way been able to infer, if not quite to prove, the existence of three moults in every species I have examined, we may fairly conclude that three is the usual, if not the invariable, number in a *Nepticula* larva.

As regards the segmentation of the mine, the ease and certainty with which it can be effected varies considerably, and in some cases it must be left alone altogether. The relative breadth of the parts helps but little, for the mines widen insensibly, or at any rate, without any marked emphasis at the moulting spots, so that we are driven entirely to the contents—the frass, for our characters. In the portion answering to the first and second skins of the larva it is not possible as a rule to resolve this substance into its separate grains, for it looks as if, from having been deposited in a soft condition, it had run together into a homogeneous cake. In the second portion (answering to the third skin of the larva) the frass sometimes continues to retain this concretionary character, but usually it is more or less completely grained, and offers nearly as much variety in the arrangement as it does in the third or final portion (answering to the 4th skin), yet, as it by no means follows that the same arrangement is adopted in both, a ready means for their distinction is afforded. Occasionally, too, a change in the colour of the frass will mark the spot where one portion ends and another begins. But it will be better, perhaps, if I give an example or two of the practicability of this segmentation. The long gallery of the birch-feeding *lapponica* is well known. In its first length the frass is of the typical concretionary character, and completely fills the mine; in the second length it is coiled (form 3), but rather obscurely, from a tendency the grains still have to run together; in the third length the frass, which had hitherto filled the mine, is suddenly collected into the centre, leaving a wide margin on each side (form 1), and at the same time its colour, which up to this point had been green, changes to black. Nothing can be more satisfactory or precise than the mapping out here. Let us now look at *fulgens*. First comes, as usual, the concretionary beginning, embracing the first two larval skins, then follows the second length, characterized by unmistakable coiling (form 3), and lastly the *third length*, with the coiling gone and the frass scattered irregularly

over the area (form 2). Here, also, there can be no doubt of the three-fold division, but since the coiling will in some specimens invade for a short distance the last length, and then melt away into the irregular arrangement more proper to it, the division is not always so mathematically correct as in *lapponica*. I should add that this piece of coiling is out and away the best means of distinguishing the mine of *fulgens* from that of *Tityrella*, which never has the slightest indication of it in any part of its course—and I must have examined some hundreds of each.

As regards the apportionment of the mine in the blotch makers, the general rule seems to be that the blotch is begun immediately after the last moult, so that the gallery portion must be allotted to the first three skins, and the blotch to the last. In *septembrella*, however, the blotch does not follow quite on the heels of the last moult, and in *angulifasciella* and *arcuatella* it is delayed to a still later date.

One point remains to be considered. It need, perhaps, scarcely be said, that the divisions under which some of these characters have been ranged are to a great extent artificial. The gallery by insensible degrees runs into the blotch; so, too, there are no sharp boundaries between the various forms of frass arrangement, and they also pass by easy gradations into each other: yet in practice this matters little, provided each species is pretty constant to one mode of working. That by far the greater number are so, even to the smallest particulars, cannot be doubted, but some few indulge in a certain license, and may fairly be called dimorphic, so far as the mine goes; yet it is a dimorphism governed, I think, much more by the nature of the leaf than by the mere whim of the insect. Thus, in typical *luteella* the frass is distributed without any attempt at order, and fills the narrow gallery to about three-fourths of its width, but not unfrequently late in the autumn when the leaves have lost much of their nutritive qualities and the indigestible cellulose has increased, the frass becomes so bulky that it now almost fills the mine, and is at the same time deposited coil fashion, though in a slovenly tentative sort of way, as if the larvæ were unused to the practice. *Oxyacanthella* coils its frass, whether the food-plant be hawthorn, pear or apple. It is noticeable, however, that shortly before its termination the gallery widens somewhat, and concurrently with the change the coiling abruptly stops and the frass is collected into a narrow central thread, showing that the larva is ready enough, when circumstances allow it, to adopt the easier and simpler method of disposal. Now, I have occasionally found, in the

thin half-starved leaves in the butts of old hawthorn hedges, mines rather wider than usual, and with the frass running in this thread-like manner through their whole length, which makes them look very different to ordinary *oxyacanthella*. That they are *oxyacanthella* I have little doubt, and would ascribe their peculiarity to the thin and flimsy nature of the leaves. Further on, when describing the mine of *betulicola*, I shall have another opportunity of showing the effect of the fleshiness of the leaf upon the character of the frass track. But unquestionably the most remarkable example of this dimorphism is to be met with in the willow-feeding *salicis*. It lives on almost any species of *Salix*, and as there are great physical differences in the leaves of these plants, so do the mines of the insect vary accordingly. In the small crumpled leaf, often met with in *S. aurita*, the mine is condensed into a vermiform gallery; in the large and less crumpled one of *S. caprea* the gallery, nearly filled with frass, is either fairly straight (following the line of a rib) or more or less contorted, or, on the other hand, it may even dilate towards its termination into a blotch; whilst in the smooth leaved *S. alba* and *S. Russelliana* it is invariably a blotch. It is of course possible that I may be wrong in considering these to be all one and the same species, but at present I can see no trustworthy difference in the larvæ, and the moths are precisely similar.

(To be continued.)

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#### ON A REMARKABLE NEW SPECIES OF *PLATYDEMA* FROM DAMMA ISLAND.

BY G. C. CHAMPION, F.Z.S.

In the present Volume of the Ent. Mo. Mag., pp. 24—26, Mr. J. J. Walker has given us an account of his entomological experiences in the Island of Damma, near Timor. Some very interesting *Coleoptera* were obtained by him, amongst them the following remarkable insect:—

#### *PLATYDEMA ASYMMETRICUM*, n. sp.

♂. Elliptic, rather broad, convex, subopaque; piceous or brownish-piceous, the anterior half of the head, the oral organs and antennæ, the apical and lateral margins of the prothorax, and the margins of the elytra, more or less ferruginous; the legs rufo-testaceous, the femora slightly infusate; the under-surface shining, pitchy-brown. Head large, broadly produced in front, densely, finely punctate, the antennary orbits obliquely converging anteriorly, and extending half-way across the eyes behind; the epistoma large, transversely convex, limited on either side and at the base by a fine groove, and with a subangular prominence in the middle in front; the intraocular space broadly depressed in the middle, armed, on the left side, with



a sharply pointed, long, stout, compressed, vertical horn, and on the right side with an angular, compressed elevation, surmounted by a very sharp point; eyes coarsely granulated. moderately large, the upper portion (as seen from above) obliquely subtriangular; antennæ moderately stout, about reaching the base of the prothorax, joints 5—11 widened and perfoliate, 5—10 transverse, 11 oval; prothorax convex, nearly two and a half times as broad as long, deeply truncate-emarginate at the apex, strongly bisinuate at the base, the sides slightly expanded, strongly rounded anteriorly, converging from a little before the base, and sharply margined, the anterior angles broadly rounded, the hind angles obtusely rectangular, the basal foveæ oblong and distant from the margin, the entire surface very densely, minutely punctured, the disc with indications of a fine, smooth median line; elytra about three and a half times as long as, and at the sides forming a continuous outline with, the prothorax, sharply margined, deeply and finely punctate-striate, the interstices convex, densely, minutely punctured; beneath finely and somewhat closely punctured, the metasternum much smoother; prosternum slightly declivous and strongly produced behind, received by the V-shaped mesosternum, the sides of the latter rounded off in front; epipleuræ broad and concave at the base, extending to the apex; propleuræ concave; metasternum very short; intercoxal process of the abdomen narrow, triangular.

♀. Epistoma simply truncate in front; the intraocular space feebly and more narrowly depressed in the middle, slightly swollen on either side above the inner limit of the eyes, unarmed. Length,  $4\frac{1}{2}$ — $5\frac{1}{2}$ , breadth,  $2\frac{1}{2}$  mm.

*Hab.* : DAMMA ISLAND.

Four males and three females. The asymmetrical armature of the head in the male is perfectly constant, the left side being furnished with a long, erect, compressed, pointed horn, and the right with an angular elevation surmounted by a very acute point. This remarkable insect should perhaps be treated as generically distinct from *Platy-dema*, but I do not propose to separate it at present. It is the only *Tenebrionid* known to me with asymmetrical cephalic armature in the male sex. The thorax and elytra are somewhat broadly margined at the sides.

Horsell, Woking :

September, 1893.

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## DESCRIPTION OF A NEW GENUS OF PHYTOPHAGOUS COLEOPTERA FROM AFRICA.

BY MARTIN JACOBY, F.E.S.

### PSEUDEUMOLPUS, *n. gen.*

Body oblong, subcylindrical; head broad, eyes small; palpi filiform; antennæ very distantly inserted immediately below the eyes, the terminal joints widened; thorax slightly longer than broad, the base constricted, the lateral margin rather obsolete but distinct; elytra broader than the thorax, the shoulders prominent, the

surface punctate-striate, their epipleuræ small and continued to the apex, thickened; femora moderately thickened at the middle; tibiæ robust, longitudinally sulcate, the anterior armed with a single, the posterior with a double spine; tarsi equal, the third joint deeply bilobed, claws bifid; prosternum broad, its base slightly rounded; mesosternum transverse; first abdominal segment double the width at the middle of the following ones.

In spite of a careful and long examination, I can come to no definite conclusion as to the proper place of this remarkable insect. The general appearance and some of the structural characters are those of a species of *Corynodes* amongst the *Eumolpidæ*, but the form of the head, thorax and antennæ, and the spines of the tibiæ, are not suggestive of a place in this Family; the distant antennæ, punctate-striate elytra and broad prosternum forbid the species to be ranked amongst the *Galerucidæ*; while the mucronate apex of the tibiæ and broad prosternum are equally strange to the first section of the *Phytophaga*, the *Eupodes*. Like the genus *Ceralces* from Africa, the present one is another intermediate link between two divisions, probably the *Eumolpidæ* and *Galerucidæ*.

**PSEUDEUMOLPUS DIMIDIATUS, sp. n.**

Fulvous, the antennæ, sides of the breast and the legs black, thorax nearly impunctate, elytra finely punctate-striate, the anterior half piceous, the posterior fulvous. Length,  $3\frac{1}{2}$ —4 lines.

Head perpendicular, fulvous, the vertex with a few fine punctures at the sides, the face broad, rather flattened, the clypeus separated by an obsolete transverse groove, slightly broader than long, the sides with a longitudinal ridge, the surface sparingly punctured, the anterior margin deeply concave; mandibles fulvous, their apex black; palpi slender, fulvous, terminal joint elongate, pointed; antennæ nearly extending to the end of the elytra, black, the lower five joints shining, the rest opaque, pubescent, the basal joint short, ovate, thickened, the second scarcely shorter, the following joints gradually and slightly increasing in length, terminal ones widened, slightly longer than broad; thorax longer than broad, narrowed at the base, the sides strongly deflexed anteriorly, subcylindrical, with a very thin lateral margin, which is visible from above only at the posterior portion of the thorax, all the angles obsolete, posterior margin slightly produced at the middle, the surface somewhat convex, fulvous, shining, entirely impunctate, with the exception of a few minute punctures at the sides; scutellum broad, its apex broadly rounded, the disc with a few strong punctures; elytra subcylindrical, broader than the thorax, the shoulders prominent, deeply sulcate within, finely punctate-striate, the rows here and there geminate, visible to the apex, the latter slightly obliquely truncate, not quite covering the pygidium, the anterior half piceous, the rest fulvous; under-side shining, impunctate, the sides of the breast black, finely obliquely strigose; legs black; prosternum broader than long, its basal margin broadly rounded, its surface rather strongly punctured; mesosternum strongly transverse, rather long, deeply punctured; tibiæ with several longitudinal sulcations, the posterior pair bimucronate.

*Hab.* : Gaboon (my collection).

In one specimen, which I take to belong to the female sex, the head has a small central fovea, and is more distinctly punctured throughout, the vertex showing some strigæ as well, the antennæ and the posterior legs are also shorter, otherwise there is no difference.

London: October 18th, 1893.

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## ON TWO HALOPHILOUS HEMIPTERA.

BY E. BERGROTH, M.D.

Among the numerous *Hemiptera* collected in the Tropics by Mr. J. J. Walker (whose interesting collecting notes are well known to the readers of this Magazine), there are two remarkable species from the Australian region that dwell in or near salt water. They belong to the Families *Veliadæ* and *Acanthiadæ*. Of the genus *Acanthia* (*Salda*) other halophilous species are known, but no species of *Veliadæ* was previously known to occur in salt water. I wish here to give descriptions of these two insects, reserving Mr. Walker's other Australian *Hemiptera* to be more amply reported upon in another place.

### HALOVELIA, n. g.

Corpus apterum, scaphuliforme, sat altum, subcompressum, ubique, dorso abdominis excepto, breviter densissime holosericeo-pubescent, subtus valde convexum, superne anterieus convexiusculum, postice ob latera abdominis compresso-elevata excavatum. Caput ad oculos parvos rotundatos immersum, subconvexo-declive, antrorsum angustatum, apice obtusum, rostro coxas anticas attingente, articulis duobus primis brevibus, secundo basin capitis non attingente, tertio basalibus duobus antea longiore, antennis paullum ante oculos insertis, tuberculo antennifero parvo, articulo primo antennarum distincte curvato, dimidio apicali apicem capitis superante, articulis tribus ultimis longitudine sensim crescentibus, secundo primo brevior. Pronotum valde transversum, medio capite multo brevius, lateribus rotundatis, margine apicali leviter, margine basali late levissime sinuato. Mesonotum postice supra partem basalem abdominis productum, ibidem late rotundatum. Prosternum medio longitudinaliter sulcatum. Mesosternum medio haud canaliculatum. Abdomen dorso planum, connexivo compresso-elevato. Pedes simplices, intermediis ceteris longiores, antici postici paullo breviores, tibiis femoribus brevioribus, anticis apicem versus haud incrassatis, tarsis omnibus biarticulatis, articulo primo tarsorum anticorum secundo multo brevior, articulo primo tarsorum mediorum secundo longior, tarsis posticis mediis multo brevioribus, articulo primo et secundo longitudine subæqualibus, unguiculis apici tarsorum maxime appropinquatis.

The nearest ally to *Halovelis* is the genus *Microvelis*, Westw.

### HALOVELIA MARITIMA, sp. n.

Latiuscule fusiformis, holosericeo-atra, opaca, macula angusta vel lineola basali

capitis et margine basali pronoti plus minusve distincte obscure fusco-purpureis, lateribus corporis continuatim rotundatis, mesonoto apice, margine connexivi apicem versus segmentoque ultimo ventrali pube subtilissime alba pubi ordinariæ atræ immixta præditis. Caput pronoto medio duplo et dimidio longius, pilis paucissimis longiusculis exsertis præditum, antennis dimidio corpori subæquilongis, subnitidis, subtilissime albo-puberulis, articulo primo et ultimo mediis paullo crassioribus. Pronotum longitudine media quintuplo latius, lateribus quam medio duplo longius. Mesonotum subæque longum ac latum. Abdomen dorso subglabrum, angulo apicali segmenti ultimi connexivi obtuso, pilis aliquot longioribus pallidis vestito. Pedes longiusculi, subnitidi, fusco-nigri, subtilissime albo-puberuli. Long., 2 mm.

Cartier Island, Timor Sea, about 175 miles (Eng.) from Cape Bougainville and Cape Voltaire on the mainland of N. W. Australia, and about 110 miles (Eng.) from Rotti Island, near Timor. Mr. Walker found several specimens under blocks of coral, below high-water mark.

In the Ent. Mo. Mag., xxvii, p. 235, Mr. Walker writes on the capture of this insect—

"Cartier is a mere sand bank, less than half a mile in length, and destitute of even the smallest trace of vegetation, but it is surrounded by an extensive coral reef, over which I had to walk, through water two feet and a half in depth, for a mile and a half, and pretty hard work, too, I found it. There was, of course, nothing to do on the Islet except to look for shells, of which I found a good many, and while looking for these I met with a very curious and interesting little Hemipteron (I fancy of the genus *Halobatodes*) inhabiting the sand beneath stones near low-water mark, à la *Æpys*."

Judging by the habits of this insect, it has presumably no winged form, as the use of wings to it seems rather problematical. The dense velvety clothing of the body makes it possibly capable of retaining air and breathing for some time, even when submerged at high water. It is probably the only insect of Cartier Island.

#### *ACANTHIA SALINA*, *sp. n.*

Ovalis, fusco-nigricans, supra brevissime fusco-pilosula, capite, pronoto scutelloque nitidulis, hemelytris opacis, macula laterali pronoti aurorsum et retrorsum secundum marginem angustius continuata, limbis lateralibus posticis scutelli signum V-forme apicale reddentibus, vitta postica clavi, margine laterali, macula media maculaque prope angulum apicalem internum corii, limbo acetabulorum, limbo postico metasterni, margine apicali segmentorum ventralium pedibusque, sæpe etiam fronte, sordide flavidis, femoribus, apice excepto, apiceque tarsorum infuscat. Caput cum oculis apice pronoti distincte latius, pronoto medio longius, fronte utrinque linea obliqua impressa nigra impressioneque media postica brevissima longitudinali prædita, antennis concoloribus, puberulis, articulo primo diametro transverso oculi superne visi subæquali, setulis aliquot exsertis instructo, articulo secundo primo duplo et dimidio longiore, tertio primo fere dimidio longiore, quarto tertio tertia parte brevior. Pronotum et scutellum balutacea, lateribus illius subrectis. Heme-

lytra apicem abdominis nonnihil superantia, corio et clavo sat dense distincte punctulatis, membrana cellulis quinque completis instructa, obscure fumosa, venis nigrinis. Tibiæ et tarsi posteriora nigro-spinulosa. Long., ♂, 3·6 mm., ♀, 4·3 mm.

Admiralty Gulf, N. W. Australia. It lives in salt water pools, on the rocks.

Common and rich in species in the palæartic and nearctic regions, the genus *Acanthia* is very scarce in the tropics. No species was hitherto known from the Australian continent.

Tammerfors, Finland :

September, 1893.

# OBSERVATIONS ON COCCIDÆ (No. 7).

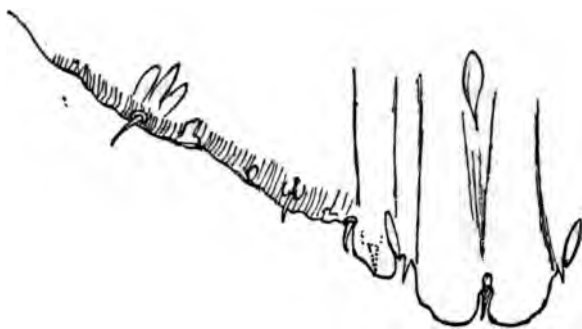
BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

ASPIDIOTUS ZONATUS, Frauent.

= *Aspidiotus quercus*, Signoret.

At the end of September, 1892, I received some ♀ scales of an *Aspidiotus* from Mr. A. T. Gillanders, who had found them on the bark of an oak tree near High Legh, Knutsford, Cheshire. Although they



differed in colour from the descriptions given by the various authors, a microscopic examination of the ♀ at once proved that they were the above species. I at once wrote to

Mr. Gillanders asking him to look for the ♂ scales on the leaves of the trees, which he did, and by return of post sent several leaves on which were a few of the ♂ scales ; subsequently (October 3rd) I visited the locality, and procured a quantity of both ♂ and ♀ scales, which, although they occurred on a single tree, were very abundant, both on the leaves and the branches. There was this peculiarity, however, the males were entirely confined to the leaves, and the females to the branches, sometimes many feet away from their partners. This is of importance, and it is quite possible that the females, to a certain extent, may have been overlooked by the various authors who have

written of the species, through this peculiar but not very unusual habit, for I find that the sexes of the *Coccidæ* often live apart, although not to such an extent as this species. Although I examined many scores of the leaves containing males, I failed to find a single female. For all this, however, the latter do undoubtedly occur on the leaves, as stated by other authors, but this habit must be abnormal, or else how could they perpetuate their species? I take it that every ♀ that fixes itself to a leaf must naturally perish with it when it falls to the ground in the autumn. I have noticed a similar habit with *Lecanium persicæ*, Fab.: last year when I was examining some peach trees that were badly infested with this scale, I noticed that the leaves were almost covered with minute yellow specks; on examining these more carefully, they were found to be the larvæ of the above *Lecanium*; they were quite fixed, and their bodies had grown so as to completely cover their legs. In this situation they remained till autumn, and with the leaves fell to the ground, where they must have perished.

As to the colour of the scale of the ♀ which I find on the bark of the oak, it is of a smoky-grey or nearly black, exactly corresponding to the bark of the tree on which it rests, with the exuvæ reddish-yellow. Hitherto the scales have been described as "whitish," but I attach no importance to this difference. In the Ent. Mo. Mag. (vol. xxiv, p. 207, and xxv, 120) Mr. Morgan has given a lengthy and interesting description of this species, and has brought together all the information that was possible to obtain at that time; but there are some slight discrepancies between the description of Mr. Morgan's specimens and the descriptions given by Dr. Signoret. The chief difference being the discovery of grouped spinnerets by Mr. Morgan in his specimens from Oporto; while on the other hand, specimens collected in France by Dr. Signoret and in England by Mr. Douglas were found to be without spinnerets. But Mr. Morgan attributes the absence of spinnerets to the immaturity of the specimens. Be this as it may, I think Mr. Morgan will agree with me that the adult ♀ may or may not possess grouped spinnerets, for I fail to find them in the many examples which I have examined from this district, and what is more important, a single adult ♀ from Oporto, kindly given to me by Mr. Morgan, is also without them. The fringe of the pygidium in my specimens is identical with the description and the specimen given by Mr. Morgan (Ent. Mo. Mag., xxiv, 207), so that I have not the least doubt as to the identity of my specimens; and I may add that Mr. Douglas has also forwarded me ♂ scales for comparison, and which I find to agree in every way with mine. In the

margin is given a drawing of the fringe of the pygidium from my specimens, and which will be found to agree with Mr. Morgan's figure (*l.c.*).

#### ERRATA.

Page 186, for "*ASPIDIOTUS AFFINIS*," read "*A. DIFFINIS*," the name *AFFINIS*, not *OFFINIS*, as Comstock has it (Rept., 1883, p. 72), being pre-occupied. Page 188, for "*DIASPIS OPUNTLE*," read "*E. OPUNTICOLA*," the name *OPUNTLE* being pre-occupied.

Chester: *September*, 1893.

### LEPIDOPTERA OF ENNISKILLEN.

BY LIEUT.-COLONEL C. E. PARTRIDGE.

Though I believe the neighbourhood of Enniskillen has been visited by Entomologists, and cannot, therefore, be considered virgin soil, yet the work has been of such a desultory character, that any notes on the *Lepidoptera* of the district cannot fail, I hope, to be of interest to collectors, and more particularly to those who may chance to find themselves here. On these grounds I have ventured to note such insects as came under my observation during 1893. In this work I have had the assistance of Captain Brown of my regiment, but though for the most part we worked entirely independently of each other, our note books show that practically our observations are identical. The list is but a meagre one, comprising only 283 species; our work was carried on under considerable difficulties.

To begin with, we were strangers to the district, and experience had to be bought at a considerable sacrifice of time. The season (here, at any rate) was the worst I have experienced since I commenced collecting, and was so abnormally early that all one's calculations were upset. Sugar throughout was a failure, and not an insect came to it until the middle of June. The prevalence of honey dew, the long drought, the abundance of flowers on all sides, unworkable because growing in the mowing grass which covers the whole mountain side, all militated against success. Such few woods as exist are devoid of undergrowth, and proved as they looked, devoid of insect life. I had anticipated a good haul from the shores of Loch Erne, but they yielded very little, principally owing, in my opinion, to the recent drainage of the lake, which has considerably altered its level and brought the swamps of a few years back under cultivation, and has wiped out such insect life as existed previously.

To sum up, I think Enniskillen and its immediate neighbourhood

is but a poor collecting ground. Just too far off to be worked without sleeping out, are the Sligo and Bundoran Sandhills, the heather-clad mountains, and the densely wooded islands of Loch Erne, all of which should prove well worth visiting. If here next season, I hope to investigate these localities and add considerably to this list; should I leave, Captain Brown has promised to give his attention to them.

*Pieris brassicæ*, common. *P. napi*, April 14th, common. *P. rapæ*, April 20th, common.—*Anthocharis cardamines*, April 21st, common.—*Argynnis Paphis*, scarce, Castle Coole.—*Vanessa urticæ*, not scarce in larval state. *V. Atalanta*, not scarce.—*Satyrus Egeria*, April 19th, in lanes. *S. Janira*, June 3rd. *S. hyperanthus*.—*Chortobius Pamphilus*, May 15th, fairly common; some very large, others with the spot wanting throughout.—*Thecla quercûs*, scarce.—*Polyommatus Phlaas*, August 14th, not common on heaths.—*Lycæna Alexis*, June 2nd, very large bright form, scarce.

*Procris statites*, May 23rd, local, but not scarce.—*Zygæna trifolii*, June 2nd, plentiful. *Z. filipendulæ*, June 2nd, plentiful.—*Smerinthus ocellatus*, August 10th, larvæ plentiful on dwarf willow. *S. populi*, May 9th, one at light.

*Hepialus hectus*, common. *H. velleda*, June 2nd, common. *H. humuli*, May 23rd, common.—*Nudaria senex*, one only.—*Nola cristulalis*, May 5th, one only.—*Euchelia jacobææ*, May 3rd, common.—*Chelonia Caja*, common. *C. plantaginis*, June 17th, a few.—*Arctia fuliginosa*, May 18th, scarce, larvæ common. *A. lubricipeda*, May 5th. *A. menthastri*, May 5th.—*Bombyx neustria*, May 27th, larvæ. *B. rubi*, larvæ very common. *B. quercûs*, larvæ on heather.—*Saturnia carpini*, larvæ on heather.

*Epione apiciaria*, August 8th, not common.—*Rumia crataegata*, May 4th, very common.—*Metrocampe margaritata*, June 2nd, common.—*Selenia illunaria*, April 8th, scarce.—*Odontoptera bidentata*, May 13th, not common.—*Crocallis elinguaris*, July 7th, scarce.—*Amphidasys betularia*, May 5th, scarce.—*Cleora lichienaria*, July 7th, a few.—*Boarmia rhomboidaria*, June 10th, not scarce.—*Tephrosia crepuscularia*, April 11th, scarce. *T. biundularia*, April 9th, scarce.—*Iodis lactearia*, May 24th, one only.—*Acidalia scutellata*, July 4th, common. *A. bisetata*, July 4th, common. *A. aversata*, one only.—*Cabera pusaria*, May 13th, common. *C. exanthemata*, May 13th, a few.—*Scodionia belgiana*, May 27th, one only.—*Fidonia atomaria*, April 27th, common.—*Abraxas grossulariata*, April 27th, hedges stripped by larvæ.—*Lomaspilis marginata*, May 9th, a very black broad bordered var. here, in wet ground.—*Hibernia leucophaæaria*, March 20th, scarce. *H. progenitaria*, March 20th, not scarce.—*Anisopteryx æscularia*, March 20th, scarce.—*Larentia didymata*, July 4th, scarce. *L. pectinataria*, June 10th, scarce.—*Emmelesia alchemillata*, July 4th, scarce. *E. albulata*, May 4th, common.—*Eupithecia subumbrata*, one only. *E. satyrata*. *E. castigata*, May 13th, one only. *E. nanata*, May 27th, scarce. *E. vulgata*, May 4th, common. *E. assimolata*, May 13th, scarce. *E. exigua*, May 9th, common.—*T hera variata*, May 16th, very scarce. *T. firmata*, September 2nd, very scarce. *T. simulata*, September 7th, one only.—*Hypsipetes ruberata*, May 3rd, scarce. *H. elutata*, May 15th, very common.—*Melanthia rubiginata*, July 1st, swarms. *M. ocellata*, April 27th, scarce. *M. albicollata*, June 2nd, one only.—*Melanippe unangulata*, May 9th, one only. *M.*



*subtristata*, April 21st, swarms. *M. montanata*, May 13th, swarms. *M. fluctuata*, May 4th, very scarce.—*Anticlea badiata*, March 21st, common. *A. derivata*, April 7th, scarce, very purple form.—*Coremia ferrugata*, April 19th, common. *C. unidentaria*, April 19th, common.—*Campogramma bilineata*, May 24th, swarms.—*Phibalapteryx lignata*, one only.—*Cidaria psittacata*, September 15th, scarce. *C. miata*, September 15th, scarce. *C. corylata*, May 9th, scarce. *C. russata*, May 10th, plentiful, very variable. *C. immanata*, July 15th, plentiful, some beautiful forms. *C. silaceata*, May 13th, scarce. *C. suffumata*, April 7th, common. *C. testata*, August 5th, common. *C. fulvata*, July 4th, scarce.—*Eubolia mensuraria*, July 16th, common.—*Tanagra charophyllata*, June 2nd, common.

*Platypteryx falcula*, scarce.—*Dicranura furcula*, August 10th, a few larvæ. *D. vinula*.—*Cilix spinula*, May 12th, very scarce.—*Pygæra bucephala*, August 10th, common in larval state.—*Notodonta camelina*, August 10th, one larva. *N. siezac*, August 10th, larvæ not scarce.

*Thyatira derasa*, June 12th, not scarce. *T. batis*, May 16th, a few.—*Acronycta tridens*, June 12th, not common. *A. psi*, June 12th, not common. *A. aceris*, May 15th, one only. *A. rumicis*, May 13th, larvæ common.—*Leucania lithargyria*, July 3rd, scarce. *L. impura*, July 1st, common. *L. pal lens*, July 1st, scarce.—*Nonagria fulva*, September 3rd, local, but not scarce.—*Hydræcia nictitans*, July 15th, common. *H. micacea*, September 7th, scarce.—*Xylophasia rurea*, May 9th, var. *alopecurus* here the type. *X. lithozylea*, scarce. *X. polyodon*, July 1st, black to quite white.—*Charæas graminis*, July 15th, common.—*Manestra brassica*, scarce.—*Apamea basilinea*, May 12th, scarce. *A. gemina*, May 16th, scarce. *A. fibrosa*, August 10th, not scarce where food-plant grows. *A. oculate*, July 1st, common.—*Miana strigilis*, common. *M. literosa*, July 15th, scarce. *M. furuncula*, June 2nd. *M. arcuosa*, June 3rd, local, but very common.—*Celæna Haworthii*, July 15th, very common.—*Grammesia trilinea*, May 16th, scarce.—*Caradrina blanda*, June 29th, scarce. *C. cubicularis*, June 2nd, common.—*Agrotis puta*, very scarce. *A. exclamatoria*, June 13th, scarce. *A. tritici*, July 5th, Bundoran. *A. porphyrea*, May 27th, one only.—*Triphæna ianthina*, August 8th, scarce. *T. fimbria*, July 15th, not scarce. *T. orbona*, August 8th, not common. *T. pronuba*, June 17th, common.—*Noctua augur*, July 1st, common. *N. plecta*, May 9th, very scarce. *N. c-nigrum*, June 12th, scarce. *N. festiva*, June 2nd, scarce. *N. rubi*, September 20th, very scarce. *N. umbrosa*, July 15th, common. *N. baja*, July 15th, scarce.—*Tæniocampa gothica*, March 20th, common. *T. instabilis*, March 20th, common. *T. stabilis*, March 20th, common. *T. gracilis*, March 29th, common.—*Orthosia lota*, September 16th, scarce.—*Cerastis vaccinii*, not common.—*Scopelosoma satellitia*, September 1st, not common.—*Xanthia cerago*, August 8th, common. *X. silago*, August 8th, scarce. *X. ferruginea*, September 15th, common.—*Cirrhædia zerampelina*, August 31st, one only.—*Cosmia trapezina*, August 8th, scarce.—*Dianthæcia cucubuli*, June 2nd, scarce. *D. conspersa*, June 2nd, scarce.—*Miselia ozyacantha*, September 16th, scarce.—*Agriopsis aprilina*, September 15th, very common.—*Phlogophora meticulosa*, September 15th, common.—*Aplecta nebulosa*, June 12th, scarce.—*Hadena adusta*, June 10th, scarce. *H. glauca*, May 18th, one only. *H. dentina*, June 2nd, one only. *H. oleracea*, June 10th, scarce. *H. thalassina*, June 10th, scarce.—*Xylocampa lithoriza*, March 20th, one only.—

*Calocampa vetusta*, September 20th, scarce. *C. exoleta*, September 20th, scarce.—*Cucullia umbratica*, June 2nd, one only.—*Habrostola triplasia*, scarce.—*Plusia chryseitis*, June 10th, scarce. *P. festucae*, August 18th, scarce. *P. iota*, scarce. *P. v-aureum*, May 23rd, scarce. *P. gamma*, scarce.—*Gonoptera libatrix*, scarce.—*Amphipyra tragopogonis*, August 8th, scarce.—*Mania typica*, June 30th, scarce. *M. maura*, scarce.

*Hypena proboscidalis*, June 2nd, common.—*Rivula sericealis*, June 10th, common.—*Herminia grisealis*, May 13th, scarce.—*Nomophila hybridalis*, common.—*Pyrausta purpuralis*, April 22nd, not common.—*Herbula cespitalis*, common.—*Hydrocampa stagnalis*, common.—*Acentropus niveus*, July 15th, common on Loch Erne.—*Botys pandalis*. *B. fuscalis*, not common. *B. urticalis*, common.—*Pionea stramentalis*, scarce and local.—*Scopula lutealis*, July 4th, common. *S. olivalis*, June 2nd, common. *S. prunalis*, May 13th, common.—*Scoparia ambigua*, May 13th, common. *S. dubitalis*, common.—*Crambus pratellus*, common. *C. pascuellus*, common. *C. perlellus*, July 5th, Bundoran, common. *C. warringtonellus*, July 5th, Bundoran, common. *C. tristellus*, August 8th, common. *C. culmellus*, August 8th, common. *C. hortuellus*, common.—*Aphomia sociella*, July 4th, common.

*Tortrix corylana*, common. *T. costana*, one only. *T. viburnana*, not common. *T. viridana*, common.—*Teras caudana*, August 5th, common.—*Dictyopteryx Bergmanniana*, June 15th, common.—*Penthina pruniana*, common. *P. ochroleucana*, scarce.—*Sericoris lacunana*, May 16th, common. *S. urticana*, May 16th, common.—*Cnephasia lepidana*, common. *C. musculana*, April 27th, common.—*Clepsis rusticana*.—*Bactra lanceolana*, May 9th, common.—*Phoxopteryx unguicana*, May 16th, common. *P. biarcuana*. *P. Lundana*.—*Grapholitha campoliliana*. *G. Penkleriana*, July 1st, common. *G. navana*, common.—*Pædisca semifuscana*.—*Ephippiphora scutulana*, scarce.—*Coccyx tadana*, May 13th, common.—*C. distinctana*, May 13th, scarce.—*Dichrorampha politana*, April 27th, common. *D. plumbana*.—*Catoptria ulicetana*.—*Xylopora Fabriciana*, common.—*Argyrolepis Baumanniana*, May 16th, scarce.

*Diurnea fugella*, common.—*Scardia cloacella*.—*Lampronia rubiella*, June 2nd, scarce.—*Incurvaria pectinea*.—*Adela rufimitrella*, scarce.—*Swammerdamia oxyacanthella*.—*Hyponomeuta padella*, common.—*Prays Curtisellus*, April 26th, common, larval state.—*Plutella cruciferarum*, common.—*Harpipteryx nemorella*, one only. *H. xylostella*, common.—*Depressaria applana*, common.—*Gelechia cinerella*, common. *G. ericetella*, April 27th, common. *G. terrella*, scarce. *G. politella*. *G. proximella*, common. *G. tricolorella*, April 7th, common in larval state.—*Chelaria Hübnerella*, scarce.—*Pleurota bicostella*, scarce.—*Dasycera sulphurella*, scarce.—*Glyphipteryx Thrasonella*, May 26th, common. *G. cladiella*, May 26th, scarce.—*Argyreathia conjugella*. *A. Gædardella*, July 1st, scarce.—*Gracilaria Swederella*. *G. stigmatella*. *G. elongella*. *G. syringella*, April 22nd, common.—*Coriscium cuculipennellum*.—*Ornix avelanella*. *O. anglicella*. *O. scoticella*.—*Coleophora nigricella*.—*Chauliodes charophyllellus*.—*Chrysocorys festaliella*, May 18th.—*Elachista rufocinerea*. *E. cygnipennella*.—*Lithocolletis pomifoliella*. *L. faginella*.—*Nepticula aurella*.

*Pterophorus trigonodactylus*, April 23rd, larval state, scarce. *P. bipunctidactylus*.

Enniskillen: September, 1893.

## DIPTERA NEW TO BRITAIN.

BY RALPH C. BRADLEY.

*Dactylolabis gracilipes*, Lw.—I captured this at Wyre Forest in 1889, but did not meet with it again until this year in June, when I took it freely in a small ride overgrown with heather about half a mile distant from the first locality. Mr. Wainwright has several in his collection from the same district, so I expect it is not uncommon.

*Goniomyia jecunda*, Lw.—Two specimens of this were taken at the same time that I captured *D. gracilipes* in 1889. Mr. Verrall remarks that Loew's specimen has an adventitious cross vein near the tip of the wing (wanting in mine) that he took as an important specific character, so possibly my species may be new to science. Although anxiously looked for, this insect has not yet been met with again.

*Ephelia varinervis*, Ztt.—Towards the end of May a small *Ephelia* was not uncommon by the side of a stream which runs at the bottom of my garden. I soon discovered it to be something new, and on sending it to Mr. Verrall he pronounced it to be the little known *varinervis* of Zetterstedt. He has three specimens from Derbyshire.

*Clinocera lamellata*, Lw.—On September 6th, 1891, this insect was met with under an arch at the overflow of a pool in Sutton Park. It was very difficult to capture, as I had to crawl under the arch, and could not use a net. I forwarded specimens to Mr. Verrall, who said it was new to the list, and named it as above. Loew says he took a pair in August, 1868.

*Didea fasciata*, Macq.—I was lucky enough to capture one specimen (♀) of this fine insect the first week in September this year, at Wyre Forest. This is a decided acquisition to the British list.

Holly Bank, Sutton Coldfield,  
Warwickshire: November, 1893.

*Hylemyia festiva*, Zett.—Since the notice which I published of this rare fly in the September number of this Magazine (p. 222), the Rev. E. N. Bloomfield kindly sent me word that another specimen had been captured by Mr. Piffard at Felden. In a collection of *Diptera* made by Mr. Beaumont I have also found a third example taken at Lewisham during the late summer; and lastly, among a number of specimens sent to me by Mr. Watkins, of Painswick, for examination, I noticed both male and female of this handsome fly, which had been bred from the borings made in a cherry stump by *Pemphredon lugubris*, F., upon which I suppose they had been parasitic.—R. H. MEADE, Bradford: October 24th, 1893.

*The Hessian Fly in South Devon*.—The hessian fly (*Cecidomyia destructor*) is very abundant in South Devon this year. From the number of "flax seeds" in the "gratten" and "screenings" they must have caused a considerable loss. Barley seems to have been most severely attacked; one field near Teignmouth contained a "flax seed" in nearly every straw. Many of these brown puparia are left in the stubble or gratten, some remaining in the straw and others falling to the ground.

I have also observed wheat severely attacked by this *Cecid.* One point of interest I particularly noticed in this neighbourhood, namely, the number of puparia on each straw, as many as eight being squashed together at one spot on several straws. I also found some situated above the third node; many had formed a large galled swelling at the node nearest them, which I have not observed before to such a marked extent. From the slovenly farming I should fancy they have every facility for increasing in this neighbourhood, unless steps are taken to check it. I believe this is the first year they have been present in excess in this county, although the hessian fly appears to have been long existent in Devonshire, as the labourers know the "flax seeds" well.—FRED. V. THEOBALD, Teignmouth, S. Devon: *October*, 1893.

*Scraptia fuscata* at Windsor.—On June 25th, while collecting with my friend, Mr. W. H. Blandford, in Windsor Park, I took a single specimen of the above insect on the inside of a hollow decayed beech. *Dorcatoma flavicornis* also occurred in some numbers in the same tree.—A. J. CHITTY, 33, Queen's Gate Gardens, S.W.: *September*, 1893.

*Coleoptera* found at Saunton and Morthoe, North Devon, June, 1893.—*Cicindela campestris*, *hybrida*. *Nebria complanata*. *Leistus ferrugineus*. *Dyschirius politus*, *æneus*. *Badister bipustulatus*. *Broscus cephalotes*. *Pterostichus dimidiatus*. *Amara spinipes*, *apricaria*, *patricia*, *communis*, *ovata*. *Harpalus æureus*, *tardus*, *rubripes*. *Pogonus chalceus*. *Bembidium littorale*.

*Bledius spectabilis*. *Philonthus laminatus*. *Ocypus pedator*, *brunnipes*. *Quedius fuscipes*. *Pæderus riparius*. *Platystethus arenarius*. *Aleochara bipunctata*, *algarum*. *Oxytelus tetracarlinatus*.

*Hoplia philanthus*. *Anomala Frischii*. *Aphodius fætens*, *erraticus*, *ater*. *Onthophagus fracticornis*, *ovatus*. *Cercyon depressus*.

*Acritus punctum*. *Scymnus frontalis*, *Mulsanti*. *Pocadius ferrugineus*. *Parnus auriculatus*.

*Athous vittatus*. *Dascillus cervinus*.

*Chrysomela fastuosa*, *staphylæa*. *Sphæroderma cardui*. *Adimonia tanaceti*.

*Microsomus tibiale*. *Ctenopus sulphureus*. *Notosus monoceros*. *Opatrum sabulosum*. *Heliopathes gibbus*. *Logria hirta*. *Phaleria cadaverina*.

*Ceuthorkynchus cochlearia*, *asperifoliarum*, *litura*. *Rhytidomus globulus*. *Phyllobius pomonæ*. *Alophus triguttatus*. *Barynotus obscurus*. *Apion minutum*. *Cleonus sulcirostris*. *Cneorhinus geminatus*. *Sitones griseus*. *Hypera trilineata*. *Otiorrhynchus atroapterus*, *rugifrons*, *ovatus*.—HAROLD SWALE, 3, Abbeymead, Tavistock: *October 7th*, 1893.

*Carcinops 14-striata*, *Steph.*, in the Isle of Sheppey.—During the past week I have met with the pretty and somewhat rare little Hister, *Carcinops 14-striata*, in considerable numbers in the precincts of a glue and chemical factory at Queenborough. It was chiefly found under bricks, bits of old sacking, bones, &c., in company with numerous *Omosita discoidea*, and many stragglers of *Alphitobius diaperinus*, *Dermestes vulpinus*, *Corynetes ruficollis* and *rufipes*, which latter species simply swarm throughout the works. The *Carcinops*, however, seem to occur almost entirely out of doors,

though the first specimen met with was taken in my presence, about a fortnight ago, by Mr. B. G. Rye, in a sack of "greaves" lying just inside the building. This is, I believe, the first time the beetle has been taken in Britain in any quantity.—JAMES J. WALKER, 23, Ranelagh Road, Sheerness: *October 29th*, 1893.

[This species is very widely distributed, occurring in Europe, Japan, the Azores, Madeira, North America, Brazil, &c.—EDS.]

*Additions to the Irish List of Neuroptera.*—The two following species do not appear to have been recorded hitherto from Ireland:—*Isopteryx tripunctata*, two obtained in moss sent from Ardara, Co. Donegal, in May; and *Limnophilus nigriceps*, of which I took several at Lowry's Lough, near Armagh, in September.

I do not find the following species mentioned in Mr. J. J. F. X. King's list, or any later record, as occurring in Ulster:—*Sialis lutaria*, Lowry's Lough, near Armagh, and at Churchill, Co. Armagh; *Leuctra fusciventris*, taken in August at Ardara, Co. Donegal; *Beræa pullata*, in the Mullinares, Armagh, in May; Mr. King gives as the only other locality for this species Carrowbeg, Co. Mayo.

I am indebted to Mr. R. McLachlan for kindly determining these species for me.—W. F. JOHNSON, Armagh: *November 13th*, 1893.

*Pararge Megara in October.*—On October 13th a pair of *P. Megara* were sunning themselves on a Michaelmas daisy bush by the Wish Tower at Eastbourne. The ♀, which was close to the path, was in absolutely perfect condition, and rather above the average size. The ♂ seemed equally fresh, but he was farther off, so I cannot speak positively.—A. H. CLARKE, 109, Warwick Road, London, S.W.: *October 28th*, 1893.

[There can be little doubt that these represented an exceptional third brood.—EDS.]

*Corrigendum concerning "Bugonia."*—My attention having been called to a *lapsus* in my paper on the "Bugonia" (Bull. Soc. Ent. Italy, 1893) in the footnote on p. 215, concerning *Carpocapsa pomonella*, I deem it useful to publish the correction here.

Instead of—"A two-winged insect of the Family *Trypetidae*, which infests apple plantations," read "A small moth (*Tortrix*) which infests," &c.

Not being familiar with the nomenclature of moths, I took the species for *Trypeta* (subg. *Rhagoletis*) *pomonella*, Walsh, which attacks apples in North America, and the name *Carpocapsa* I confused with *Carphotricha*, which is one of the subgenera of *Trypeta*.—O. R. OSTEN-SACKEN, Heidelberg: *November*, 1893.

## Obituary.

*James Batty*, of 65, Fawcett Street, Sheffield, died on October 14th, aged 62 years. He was an excellent type of the working man Lepidopterist, and the last surviving practical worker of the old Sheffield Entomologists' Club, which comprised many well known naturalists thirty and forty years ago. Batty had an excellent knowledge of larvæ, and was the discoverer of those of *Tapinostola elymi* and *Celana Haworthii*. He was a regular correspondent of the late Mr. Wm. Buckler and the Rev. John Hellins, and used to keep them well supplied with material for descrip-

tion ; he was also a good Micro-Lepidopterist, and has left a fairly typical collection of *Tortrices* behind him. Apart from these he had no collection, having sold it years ago to, I believe, Mr. J. B. Hodgkinson ; he then gave up Entomology to within a few years ago, when he re-commenced ; two years since he started his small collection of *Tortrices*. He will be much missed by the undersigned, who was his companion in hundreds of his excursions, and who is requested by the family to ask that any one having claims for boxes, &c., will make them direct to him.—A. E. HALL, Norbury, Sheffield.

*Prof. Hermann August Hagen, M.D., Hon. F.E.S.*—Information has been received from America of the by no means unexpected death on November 9th of this well-known Entomologist in his 77th year. A detailed notice will appear in our next No.

## Societies.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY : November 13th, 1893.—Mr. S. J. CAPPER, F.L.S., President, in the Chair.

The subject for discussion was the *Vanessida*. Owing to the absence of Mr. C. H. Schill, who was to have given a paper on this subject, Mr. F. N. Pierce, F.E.S. (Hon. Secretary), read a few notes. There were a large number of specimens exhibited, the President showing many fine varieties from his collection, among which was the celebrated specimen of *Cynthia cardui* from the collection of the late Mr. Owen, having the white spots at the apex of the fore-wings obliterated by dark scales, and "blind" specimens of *Vanessa Io*. Mr. Harker exhibited a fine *Vanessa Atalanta*, the red border being creamy-yellow. Mr. Walker exhibited his unique collection of varieties of *Vanessa Antiopa*, bred by him from Canadian pupæ. Mr. Watson, *Teinopalpus imperialis*. Mr. Stott, on behalf of Mr. H. S. Clarke, a specimen of *Ophion obscurum* and *Paniscus tarsatus*, which had been sent to him as having stung a woman in Douglas, causing blood poisoning.—F. N. PIERCE, Hon. Secretary.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY : October 12th, 1893.—J. JENNER WEIR, Esq., F.L.S., President, in the Chair.

Mr. J. H. Carpenter exhibited long series of the white spotted forms of *Argynnis Paphia*, L., and a small form of the same species, all from the New Forest ; Mr. Tutt remarking that this white-spotted form was frequently tinted with green, as in var. *Valezina*, more especially the females. Mr. Frohawk exhibited examples of *Vanessa cardui*, L., *V. Atalanta*, L., *V. polychloros*, L., &c., being the largest he had bred and the smallest captured, the difference being very considerable. Mr. Barrett exhibited a gynandrous specimen of *Argynnis Paphia*, L., taken in the New Forest ; also, amongst others, the two broods of *Vanessa levana*, L., and *V. c-album*, L., lent by Mr. Merrifield, of Brighton, showing the seasonal dimorphism produced from the same batch of ova by means of artificial warmth and cold. Mr. South exhibited a specimen of *Orthotania antiquana*, Hb., taken on June 28th, 1893, on a shop window at St. John's Wood ; also long series of *Pyrausta purpuralis*, L., and *P. ostrinalis*, Hb., both of which he considered to be forms of one species, many that he showed being intermediate and referable to either ; a long discussion fol-

lowing. Mr. B. W. Adkin, *Leucania vitellina*, Hb., and *L. extranea* from the Scilly Isles. Mr. Auld, a specimen of *Vanessa Atalanta*, L., having an orange band on one hind-wing, and red on the other. Mr. Briggs, a bright blue female *Lycæna bellargus*, Rott. Mr. Dennis exhibited examples of a partial third brood of *Pararge Megara*, L. Mr. Turner showed three specimens of the Scotch form of *Arctia menthastri*, Esp. Mr. Adye, a specimen of *Deilephila livornica*, Esp., captured at Christchurch, May 25th, 1893. Mr. McArthur, a second brood of *Boarmia repandata*, L., from the south of Ireland. Mr. Jenner Weir exhibited specimens of the Tsetse fly, *Glossina morsitans*, received from Dr. Percy Rendall, in the Transvaal; also a specimen of a *Depressaria*, taken by him more than thirty years ago, near Lewes, probably *D. aurantiella*, Tutt. Mr. Robert Adkin exhibited a series of *Cymatophora or*, Fb., bred from larvæ found feeding between united leaves of aspen, in Sutherlandshire, together with representatives of the South English, Shetland, and Rannoch forms for comparison. Mr. T. R. Billups exhibited a number of species of rare *Diptera*, taken at Oxshott and Dulwich, including, amongst others, *Helomyza pallida*, Fb., *Sciomyza dubia*, Mg., &c. Mr. C. Oldham exhibited *Xanthia circellaris*, Hufn., *X. gilvago*, Esp., *Anchocelis lunosa*, Haw., *A. litura*, &c., from Essex, Cambridgeshire, and Norfolk.—H. WILLIAMS, Hon. Sec.

October 26th, 1893.—The President in the Chair.

Mr. Frohawk exhibited a second brood of *Argynnis Paphia* from eggs of var. *Valezina*, only one of the four specimens being the var. Mr. Tutt remarked that he had bred second broods of *A. Paphia* and *Vanessa urticae*. Mr. South, continental specimens of *Lycæna bellargus*, with its var. *Ceronus*, a female blue like the male, with the fulvous spots on the upper-side; *L. Corydon* and its var. *syngrapha*, a female, blue like the male, with the fulvous spots, and a specimen with the fringes perfectly white; also large and dark specimens of *L. Arion*. Mr. Weir remarked that many years' experience of the Blues at Lewes had produced but very little variation. Mr. S. Stevens, *Tinea simplicella*. Mr. Hamm, long series of the two broods of *Leucophasia sinapis*, well illustrating both seasonal and sexual dimorphism; *Colias Edusa*, with several var. *Helice*, among which was a female with only the faintest trace of a spot in the black border; long series of *Melitæa Aurinia*, bred from Hampshire, with captured specimens from Swansea for comparison, also a remarkable scaleless aberration; some of the Hants specimens were comparable to var. *hibernica*; a specimen of *Polyommatus Phlæas*, with fewer spots on the primaries than Members had noticed before; bleached vars. of both *Epinephle Janira* and *E. Tithonus*; a var. of *Smerinthus tilia*; a most remarkable var. of *Epinephle hyperanthus*, having only one wing normal; a case containing long and varied series of all the genus *Xanthia*, that of *X. gilvago* from Reading being especially noticeable; some fine *Dasycampa rubiginea* and *Cosmia paleacea*; with many other species. Mr. Carpenter, bred series of *Triphana comes* from Aberdeen, and of *Aplecta prasina* from Essex. Mr. Enock, a very dark female of the dark April brood of *Lycæna Argiolus*, taken at Torquay by Master John Enock. Mr. P. Bright, a gynandrous specimen of *Argynnis Paphia*, the left side male, the right female; a very dark specimen of *Ematurga atomaria*, and another with three normal wings, while the right inferior was uniformly dark; a very dark female *Stilbia anomala*; and a varied series of *Emydia cribrum*, some being banded. Mr. Adkin, the following

types of variation in *Polyommatus Phlaas*, taken at Eastbourne on September 4th: (1) showing the submarginal row of black spots on the primaries reduced, in some specimens to minute dots; (2) showing spots large, costa and wing rays thickly dusted with black scales; (3) discoidal spots and No. 3 of the submarginal series connected by a black streak; (4) spots showing a tendency to elongation; also a long variable series of *Boarmia repandata* bred during August from S. of Ireland ova, among them being examples of both *conversaria* and *destrigaria* forms; he remarked that this was only a partial second brood, about half the brood being now in hibernation. Mr. McArthur, very dark specimens of *B. repandata*, bred from the same locality as the last. Mr. Carpenter remarked that he had attempted to force the larvæ of this species, but unsuccessfully. Mr. Billups, the Teetse fly, *Glossina morsitans*, with *Stomoxys calcitrans*, the nearest akin to it we have in this country; also the rare species of *Sarcophagidæ*, *Cynonymia mortuorum*, captured at Oxshott in July, 1891. Mr. Weir, *Heliconius Rhea*, and its mimic, *Papilio Pausanius*, and remarked that not only the colour of the *Heliconius*, but the shape also, was closely mimicked by the *Papilio*, in which latter respect it departed very much from the usual form of the *Papilioninæ* of South America. Mr. Frohawk, pupa of *Argynnis Adippe*, and a discussion ensued relative to the two types of pupa noticed in the genera *Argynnis* and *Vanessa*.—HENRY J. TURNER, *Hon. Sec.*

November 9th, 1893.—C. FENN, Esq., F.E.S., Vice-President, in the Chair.

Mr. R. Adkin exhibited a bred series of *Hypsipetes ruberata*, from Sutherland; also *H. sordidata* and *Emmelesia minorata*, taken in Inverness. The *H. ruberata* varied from pale grey, with numerous transverse darker striæ, to light chocolate-brown, with slightly darker basal patches, whilst some were light greenish-grey with dark brown lines. Some of the *H. sordidata* were of a dark mottled brown, while others were greenish. A discussion ensued concerning the food-plant of *H. ruberata*; it was stated that those bred from sallow were almost invariable, and of the red form, while those from willow were most variable. Mr. Carpenter, *Boarmia repandata*, bred from the New Forest, about half the brood being the *conversaria* form. Mr. West, a light var. of *Abraxas grossulariata*, taken at Streatham. Mr. Oldham, light forms of *Agrotis segetum* from Woodford, and dark ones from Norfolk; also a piece of ash bark channelled by either a *Tomicus* or *Scolytus*. Mr. Watson reported a second brood of *Apatura Iris* in the New Forest, he having taken a full fed larva on October 7th, which he was daily expecting to emerge. Mr. Carrington gave a most interesting account of his recent experiences in Manitoba; he stated that the day after leaving Merville a specimen of *Vanessa urtica* appeared on deck, and continued to be seen until the day before reaching land, and that on the return voyage several species of *Lepidoptera* were observed, having no doubt been sheltered in the hay, which formed part of the cargo. On the *Umbellifera* were seen quantities of *Argynnis*, besides many other species, and he considered the numerous station clearings to be admirable collecting grounds. There seemed but little life in the forests of fir away from the railway track. *Vanessa Antiopa* was seen here and there, and a *Papilio* was common in one place. The prairie region was absolutely flat. Here there was more life, *Lepidoptera* were less plentiful, but *Neuroptera* and *Orthoptera* were in swarms, while *Diptera*, presumably a *Culex*, were almost intolerable, from the persistence of



their attacks. Messrs. Fenn, Watson, and others took part in the discussion which ensued, and a hearty vote of thanks to Mr. Carrington was unanimously passed.—  
HY. J. TURNER, *Hon. Sec.*

ENTOMOLOGICAL SOCIETY OF LONDON: *October 18th, 1893.*—HENRY JOHN ELWES, Esq., F.L.S., F.Z.S., President, in the Chair.

Professor C. H. Tyler Townsend, of the Institute of Jamaica, Kingston, Jamaica, was elected a Fellow of the Society.

Mr. R. Adkin exhibited two *Leucania vitellina* and one *L. extranea*, taken by Mr. B. W. Adkin in the Scilly Islands, in August, 1893.

Mr. R. South exhibited a specimen of *Polyommatus baticus*, and a number of varieties of *Chrysophanus Phlaas*, captured in Kent, in September last, by Mr. Sabine; also a curious variety of *Argynnis Euphrosyne*, taken in Lancashire in May, 1893, by Mr. T. Baynes; a pallid variety of *Vanessa urtica*, taken by Mr. W. E. Cox in Monmouthshire, in July, 1893; and a *Triphæna pronuba*, the right wings of which were typical, and the left wings resembled the variety *innuba*, caught at sugar, in Dovedale, Derbyshire, by Mr. Blagg, in July, 1893.

Mr. G. H. Verrall exhibited a specimen of the Tsetse (*Glossina morsitans*), and also one of the common European allied species (*Stomoxys calcitrans*). He also exhibited a specimen of *Hæmatobia serrata*, Duv., which he stated was not uncommon on cattle in England, but believed to be harmless; while in North America the dreaded "horn-fly" is said to be the same species.

Mr. Elwes exhibited a larva which he had found three days previously under stones on a moraine, apparently quite destitute of vegetation, in the Tyrol, at an elevation of about 7000 feet. He remarked on the number of Alpine butterflies, some of them in fresh condition, which he had seen whilst chamois-hunting in the Tyrol during the last week, and he suggested that in such a fine autumn as the present one collectors might find more novelties among the larvæ of Alpine species than in the summer.

Colonel Swinhoe read a paper, entitled, "A list of the Lepidoptera of the Khasia Hills" (Pt. 2). Mr. Elwes said he thought all Entomologists would be grateful to Colonel Swinhoe, Mr. Hampson, Mr. Meyrick, and others, for the work they had recently been doing in describing the moths of India; but as the district of the Khasia Hills was probably richer in species than any other part of India, except Sikkim, and new species were being received almost daily, it was impossible to make any list complete. Mr. Jacoby, Mr. McLachlan, Mr. Jenner Weir, and Colonel Swinhoe continued the discussion.

Mr. E. Meyrick communicated a paper, entitled, "On a Collection of Lepidoptera from Upper Burma." The author stated that the species enumerated in the paper were collected by Surgeon-Captain Manders whilst on active service in the Shan States and their neighbourhood, shortly after the British annexation of the territory. A discussion followed, in which the President, Surgeon-Captain Manders, and Colonel Swinhoe took part.

*November 8th, 1893.*—The President in the Chair.

Mr. Henry Jerome Turner, of 13, Drakefell Road, Hatcham, S.E.; Mr. F. W. Ulrich, of Trinidad, West Indies; and Mr. John Cooper Webb, of 32, Henslowe Road, Dulwich, S.E.; were elected Fellows of the Society.

Mr. F. Merrifield exhibited some low-temperature forms of *Vanessa Atalanta*, artificially produced, which showed a great reduction in the area of the scarlet bands on the wings, and a great increase in the area of the white and bluish markings.

Professor E. B. Poulton described and illustrated, by means of a map, a simple method for showing the geographical distribution of insects in collections. Below the name label of the genus, and of each species, were placed coloured slips of such a size as to be distinctly visible at a distance, and the colours, with one exception, correspond with those made use of in the map at the beginning of Vol. i of Dr. A. R. Wallace's "Geographical Distribution of Animals." The exception referred to was the Palearctic Region, which was coloured blue, instead of pale brown as in the original. Framed maps of the same kind, and coloured in the same way as the one he exhibited, were to be placed in Museums, so as to be readily seen from various groups of cabinets. In these maps the names of the Regions, and numbers of the Subregions, were distinctly printed, so that they could be read at a considerable distance. Prof. Poulton added that the method he had described was being gradually introduced into the Hope Collections at Oxford. Mr. McLachlan stated that a somewhat similar plan to that described by Prof. Poulton for showing the geographical distribution of insects, had been adopted in the Brussels Museum by Mons. Preudhomme de Borre. Mr. W. F. H. Blandford, Dr. D. Sharp, Mr. C. J. Gahan, Mr. C. O. Waterhouse, Mr. Osbert Salvin, Prof. Poulton, and the President, continued the discussion.

Dr. Sharp read the following extract from Dr. Livingstone's "Narrative of an Expedition to the Zambesi," and stated that he was indebted to Mr. Gahan for calling his attention to it:—"We tried to sleep one rainy night in a native hut, but could not because of attacks by the fighting battalions of a very small species of *Formica*, not more than one-sixteenth of an inch in length. It soon became obvious that they were under regular discipline, and even attempting to carry out the skilful plans and stratagem of some eminent leader. Our hands and necks were the first objects of attack. Large bodies of these little pests were massed in silence round the point to be assaulted. We could hear the sharp, shrill word of command two or three times repeated, though, until then, we had not believed in the vocal power of the ant; the instant after we felt the storming hosts over head and neck, &c."

Prof. Poulton read a paper, entitled, "On the sexes of larvæ emerging from the successively laid eggs of *Smerinthus populi*." Mr. Merrifield, Dr. Sharp, and the President took part in the discussion which ensued.

Mr. W. L. Distant communicated a paper, entitled, "On the Homopterous genus *Pyrops*, with descriptions of two new species."

The President read a paper, written by himself and Mr. J. Edwards, entitled, "A Revision of the genus *Eneis*," which he characterized as the most cold-loving genus of butterflies. He also exhibited his complete collection of species of this genus, which was said to be the finest in the world. A long discussion ensued, in which Prof. Poulton, Mr. McLachlan, Mr. Salvin, Mr. Bethune-Baker, the Rev. Dr. Walker, Mr. Kirby, Mr. Merrifield, Mr. Barrett, Mr. Blandford, Dr. Sharp, and Mr. Jacoby took part.—H. GOSS, *Hon. Secretary*.









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